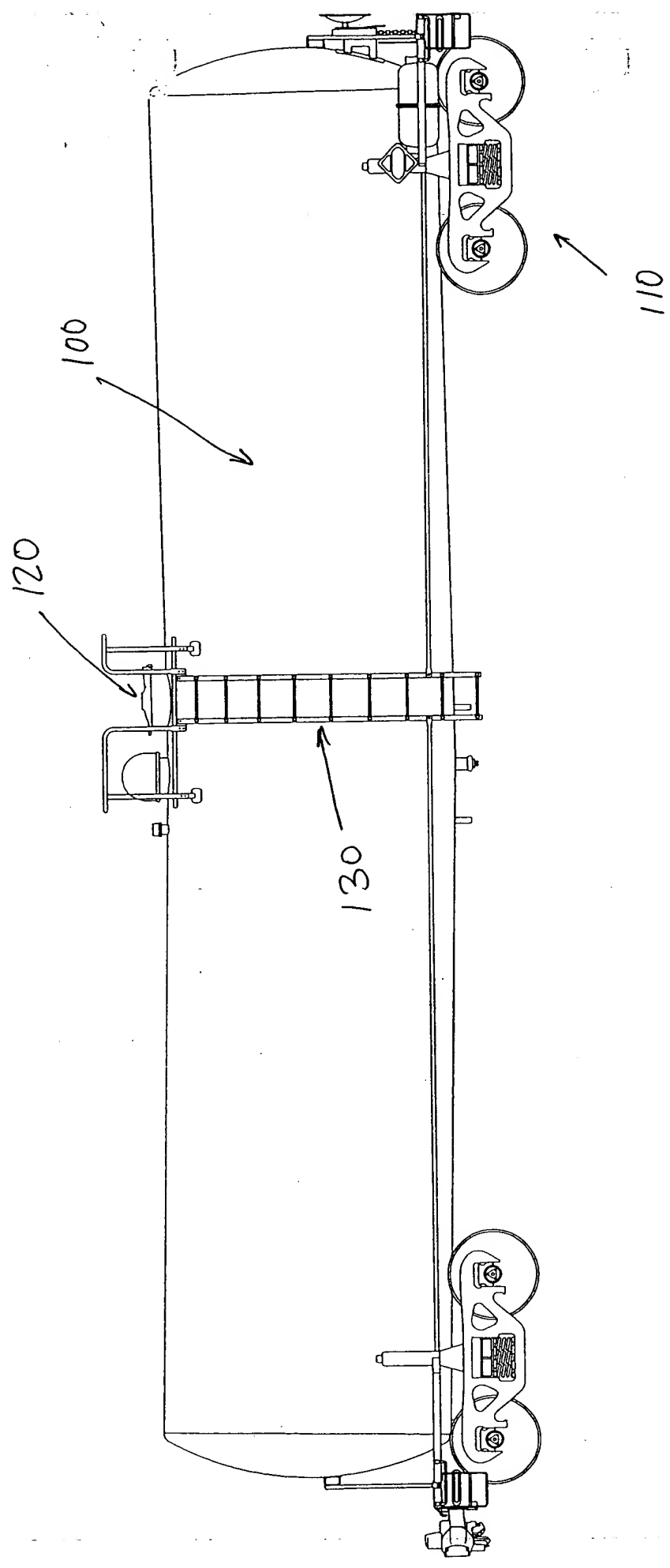


FIG. 1



elad
pud
ladh

FIGURE 2

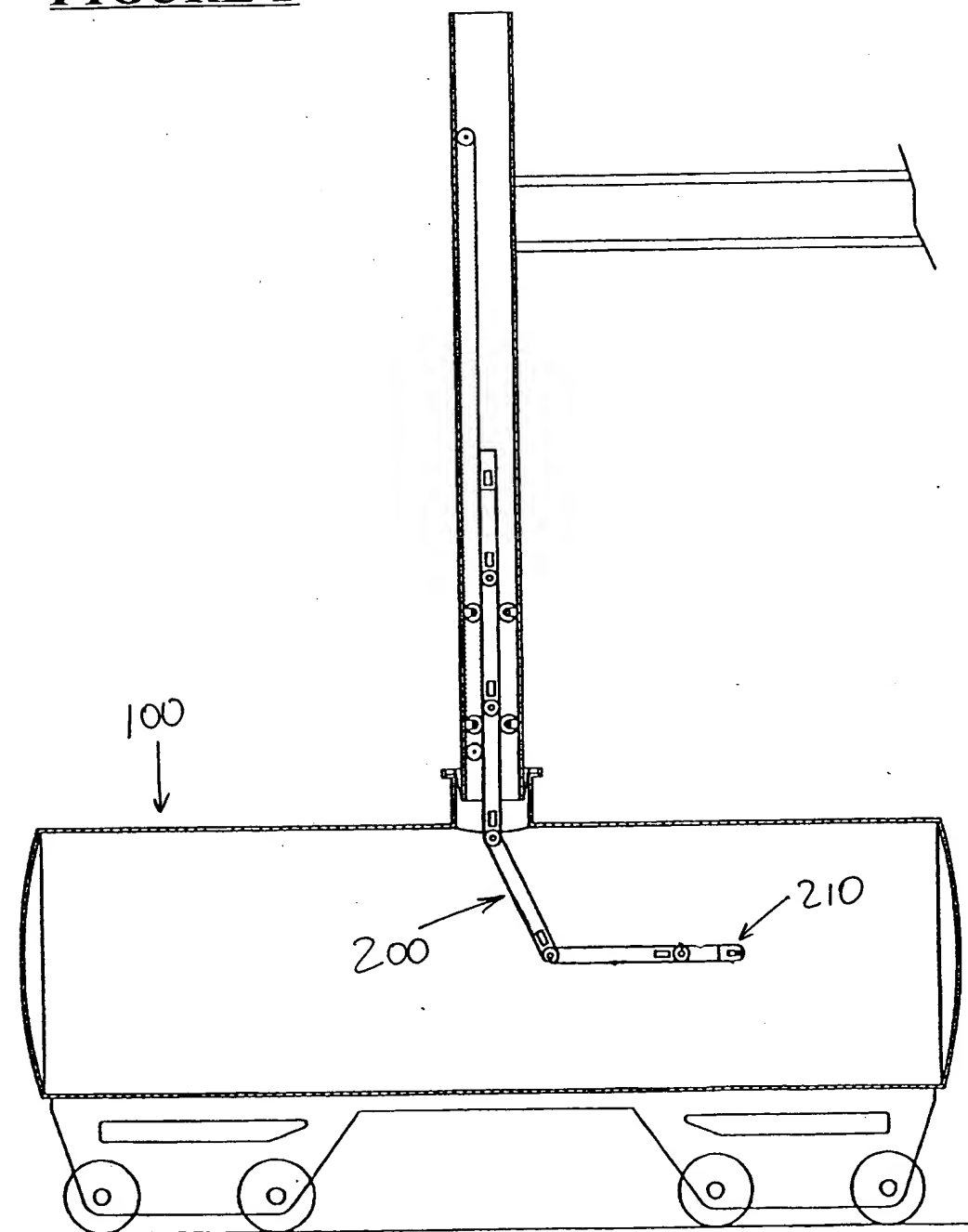


FIG. 3

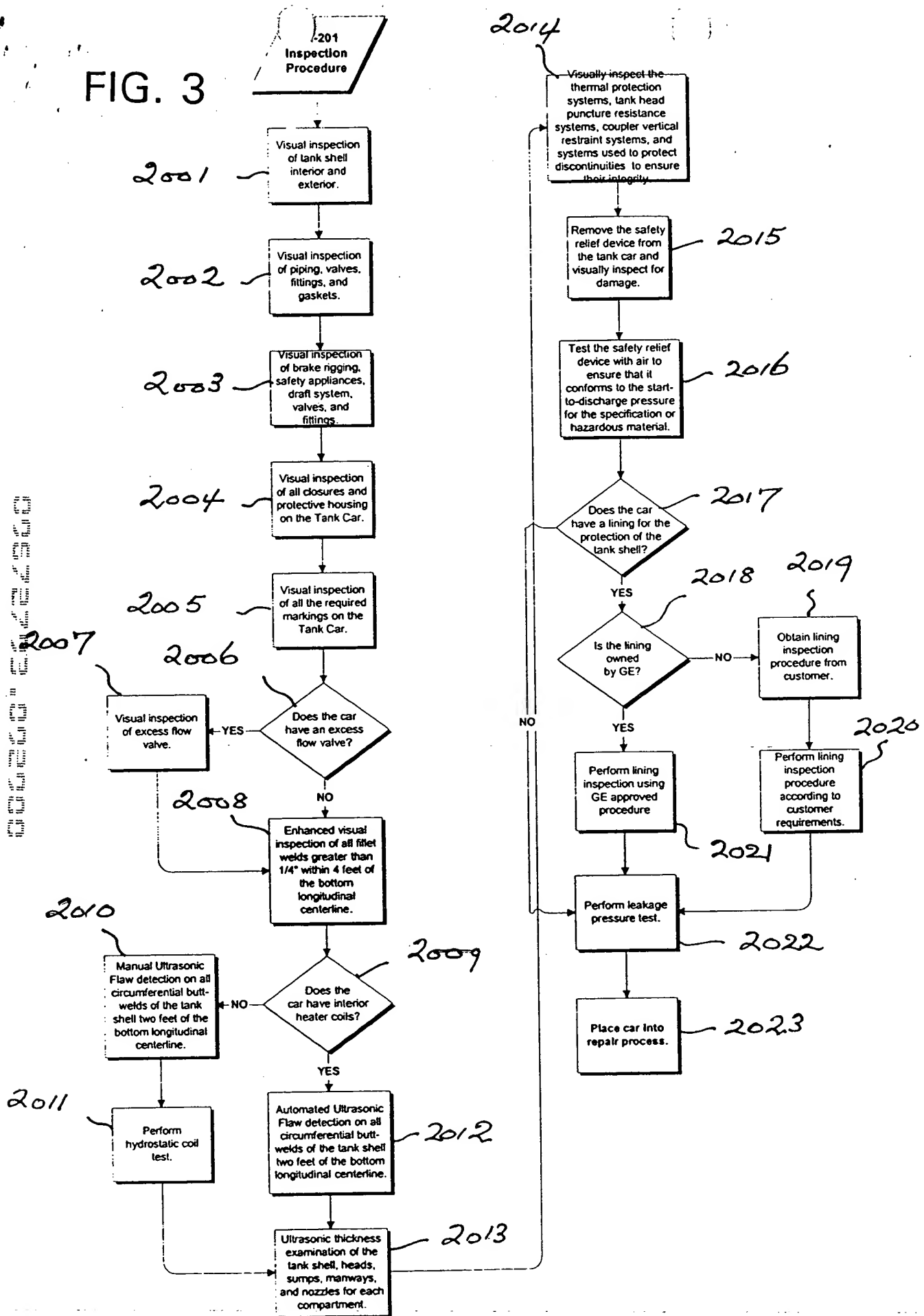


FIGURE 4A

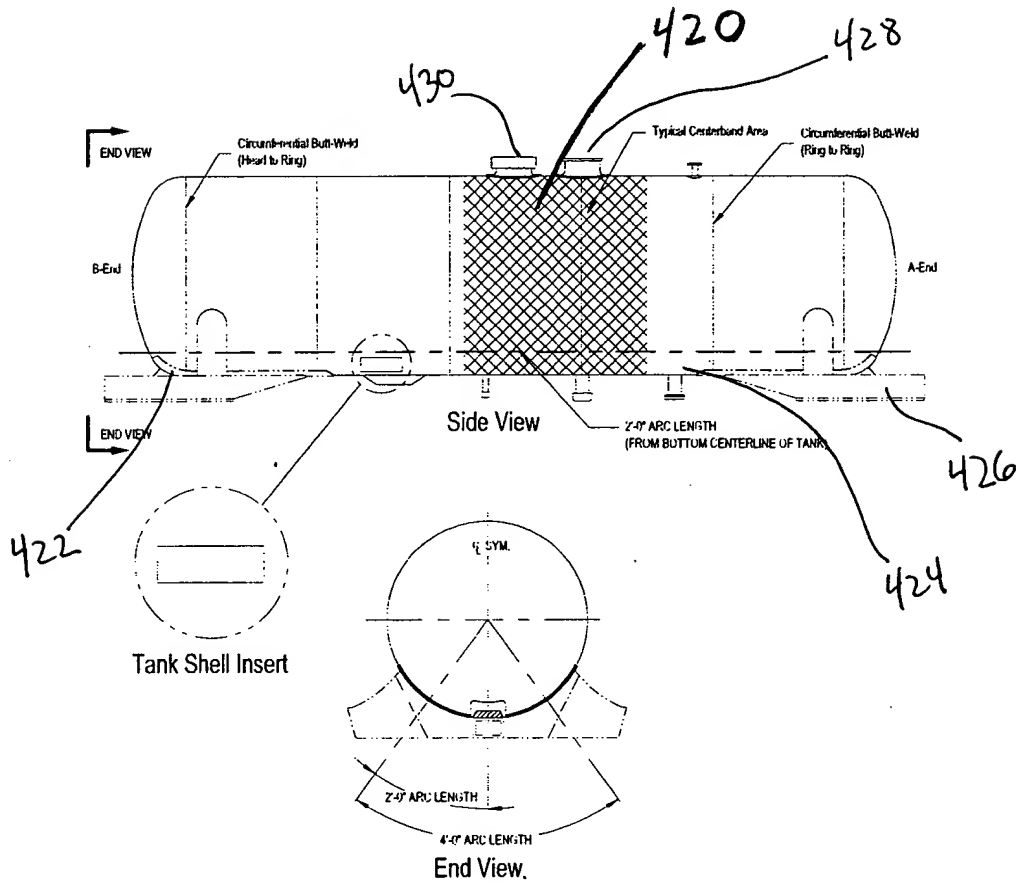


FIGURE 4B

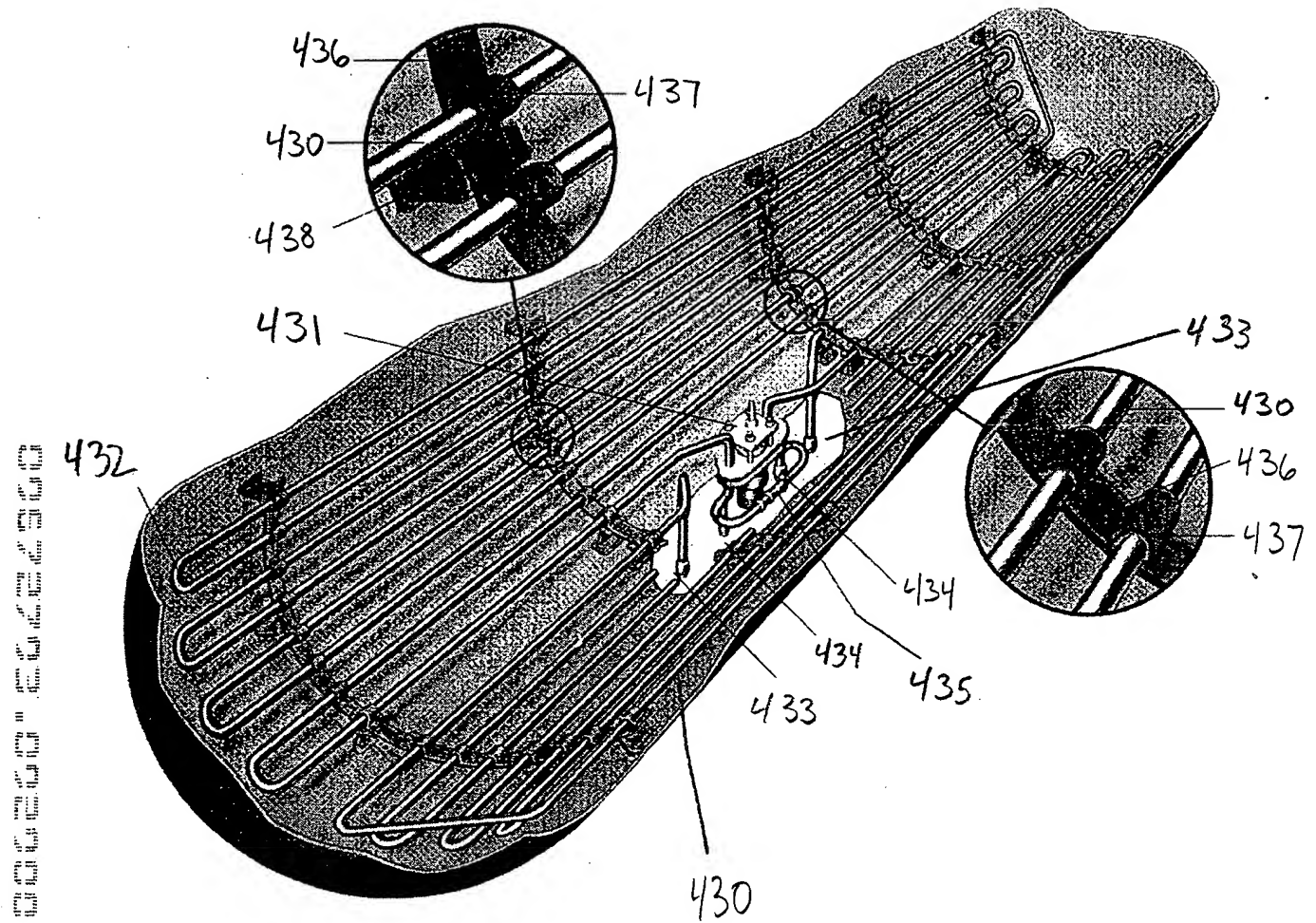


FIGURE 4C

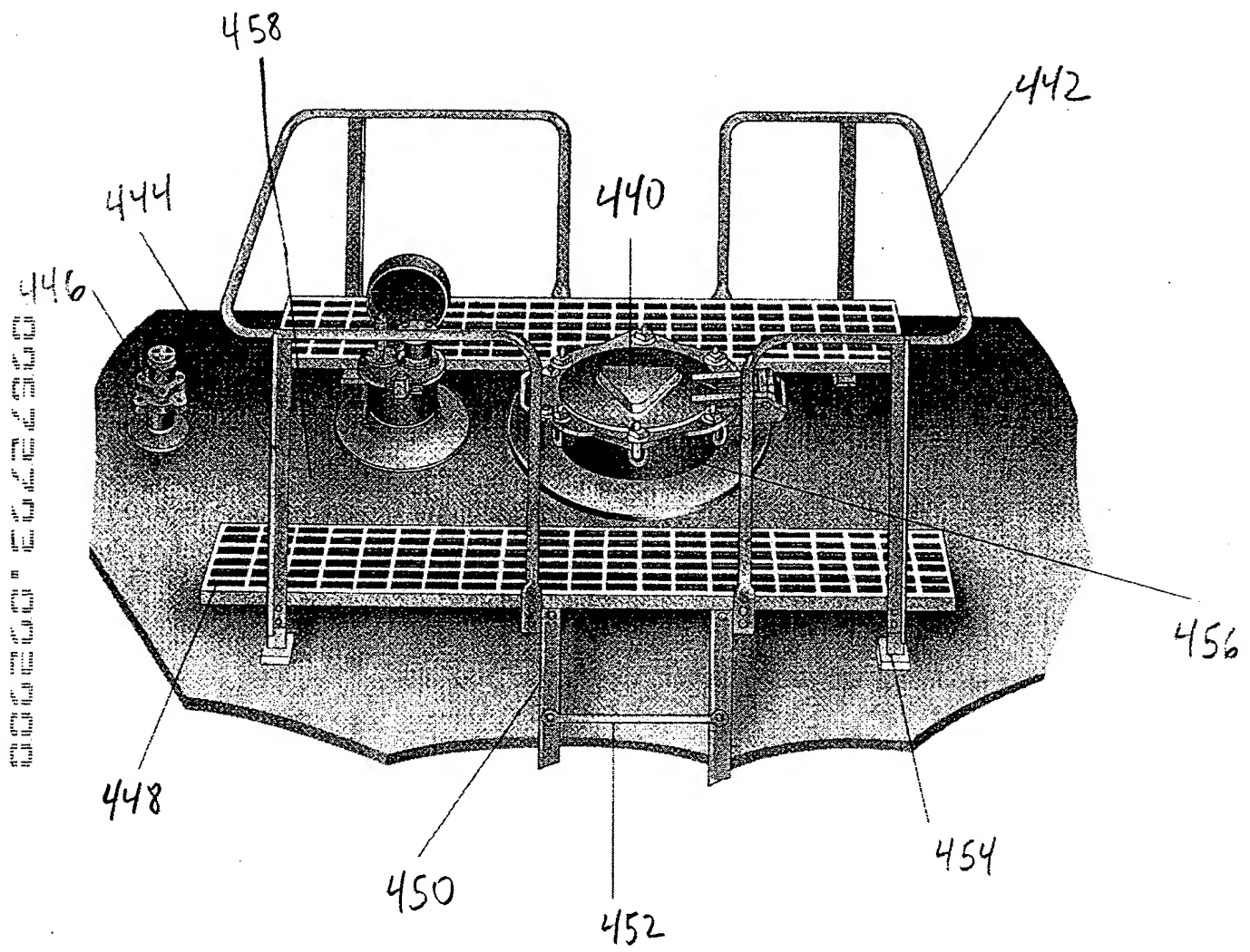


FIGURE 4D

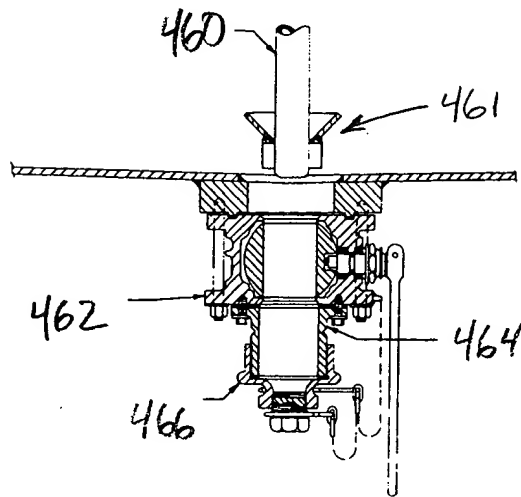


FIGURE 4E

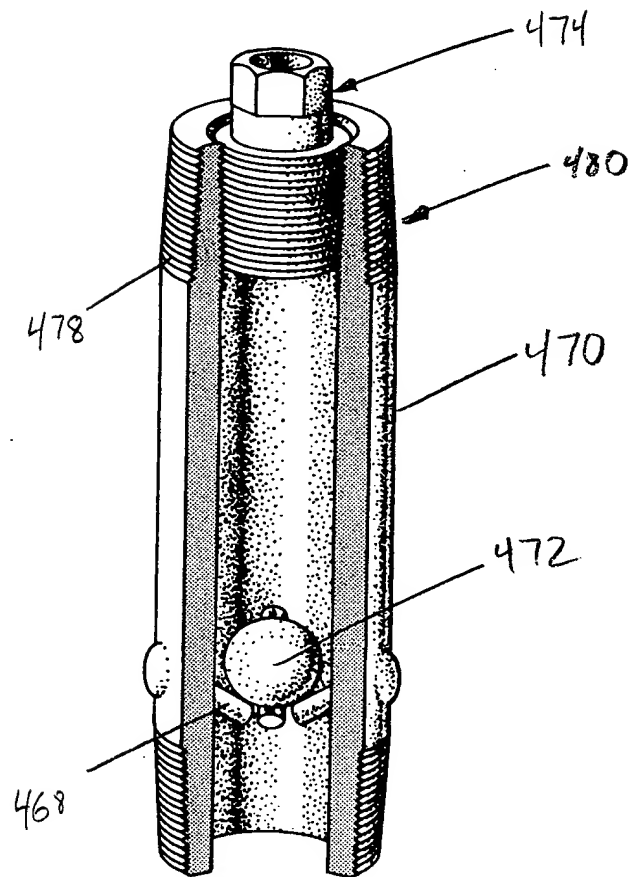


FIGURE 4F

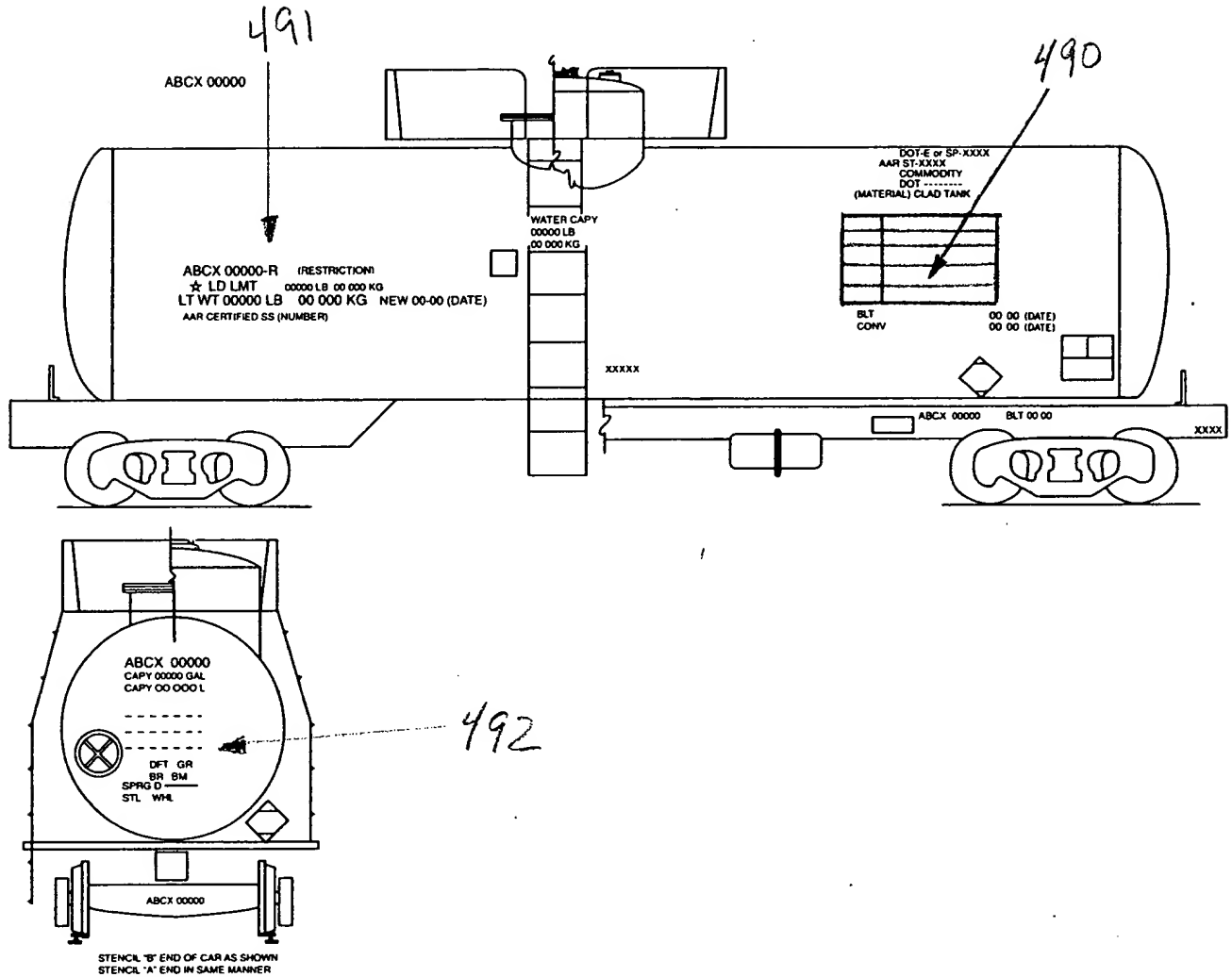


FIGURE 4G

		41 3/4"			
17 1/4"			STATION STENCIL	QUALIFIED	DUE
	TANK QUALIFICATION				
	SERVICE EQUIPMENT				
	(1a)	(1b)			
	(2a)	(2b)			
	COATING/LINING				
	TYPE	(3a)			
DATE APPLIED		(3b)			
88.B.2 INSPECTION					

FIGURE 5A

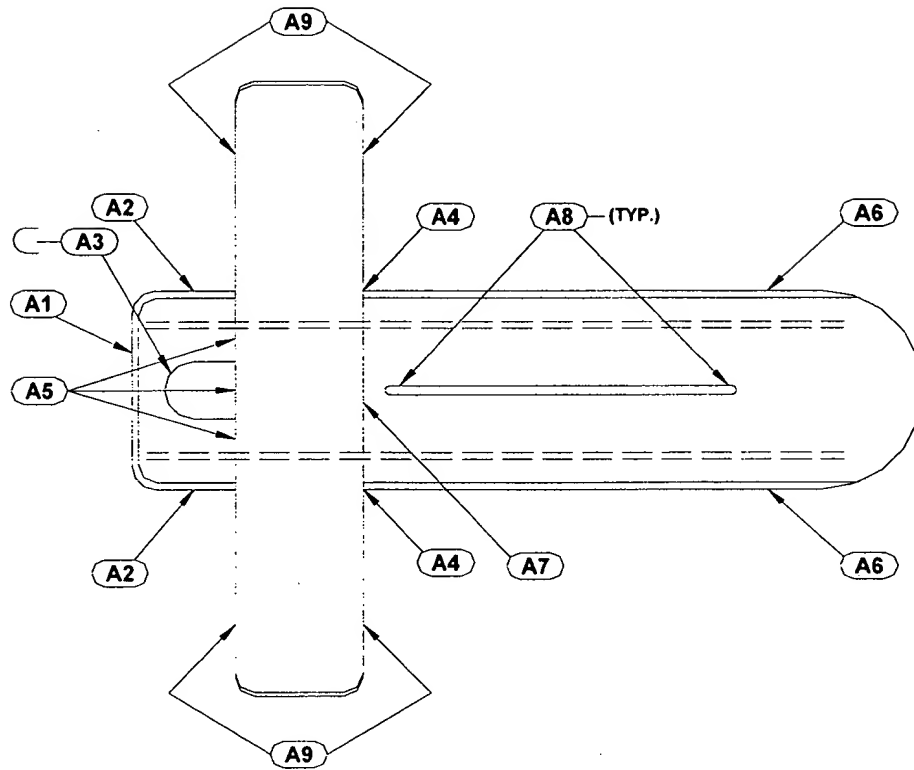


FIGURE 5B

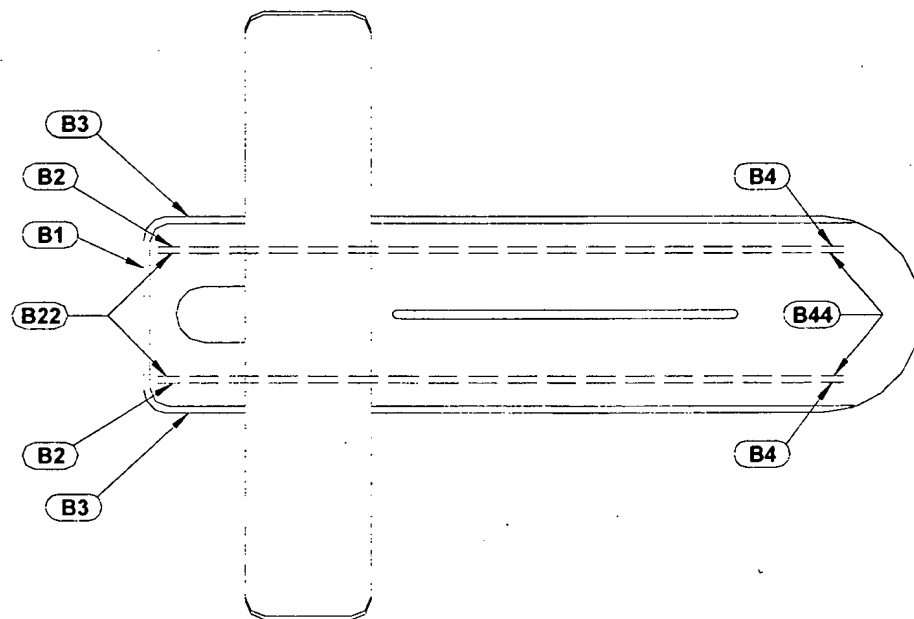


FIGURE 5C

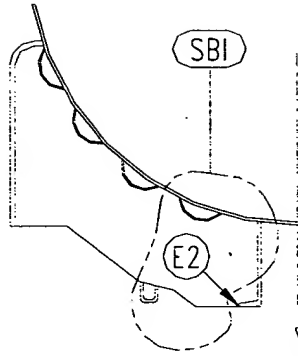


Fig. 1

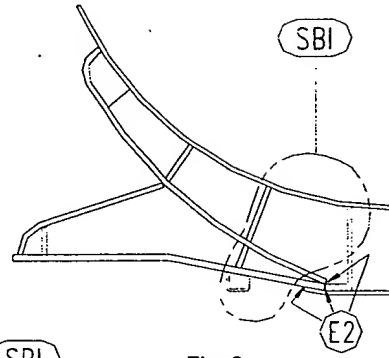


Fig. 2

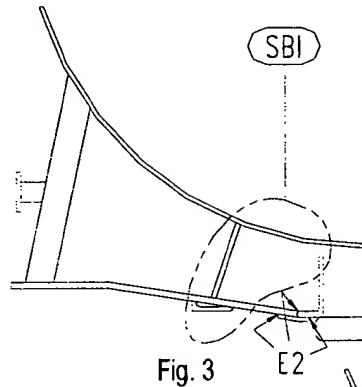


Fig. 3

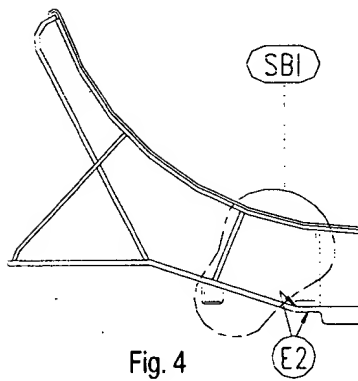


Fig. 4

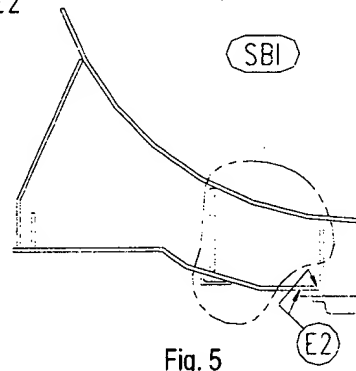


Fig. 5

FIGURE 5D

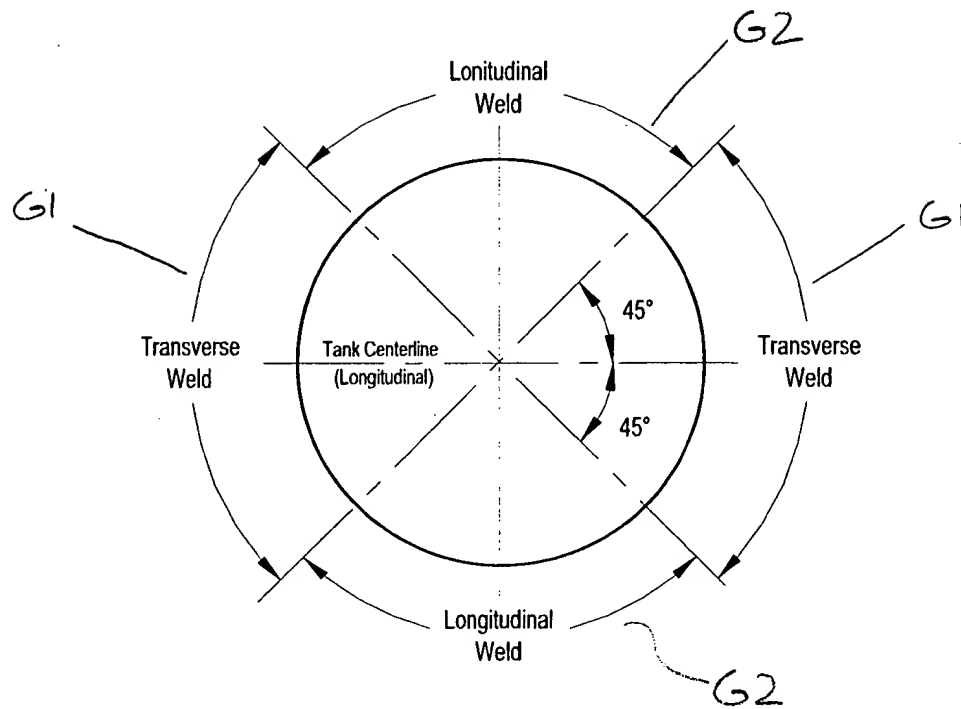


FIGURE 5E

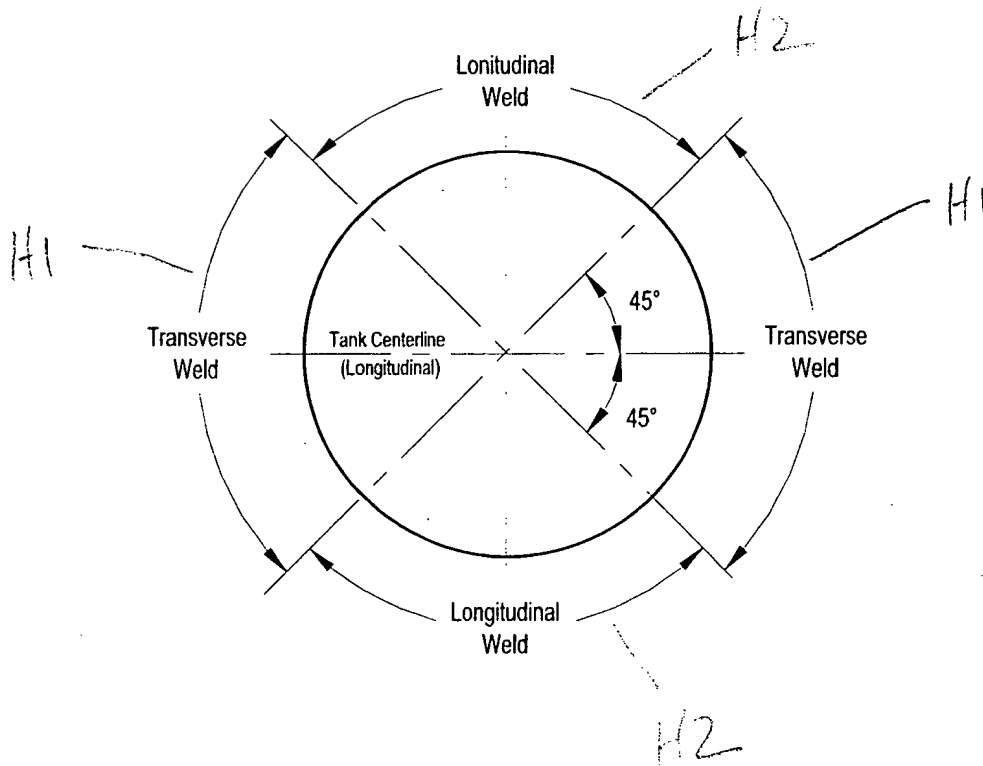


FIGURE 5F

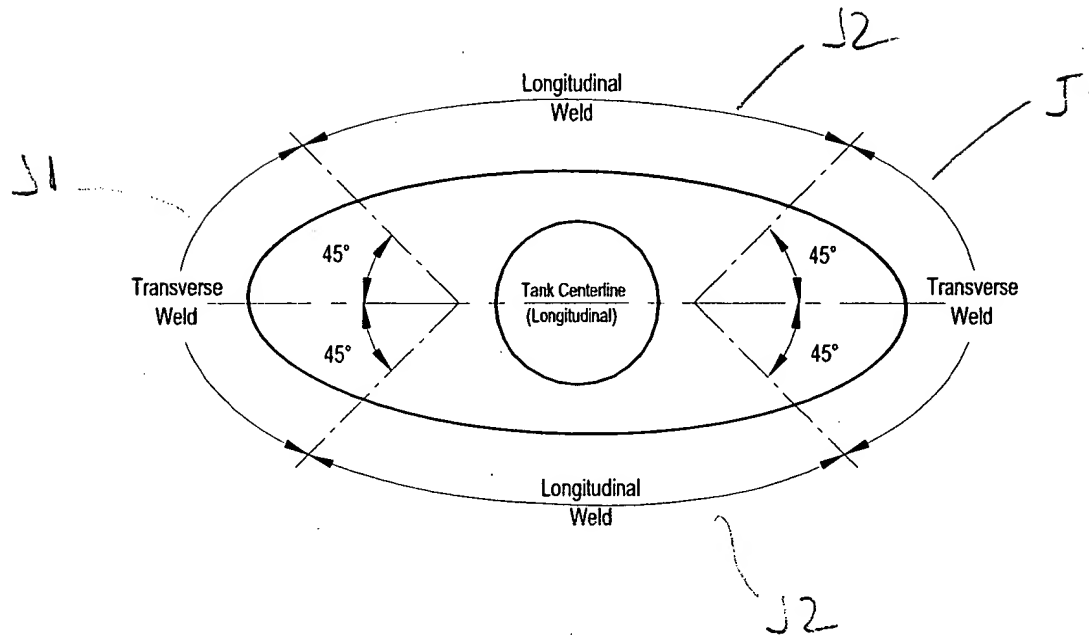


FIGURE 5G

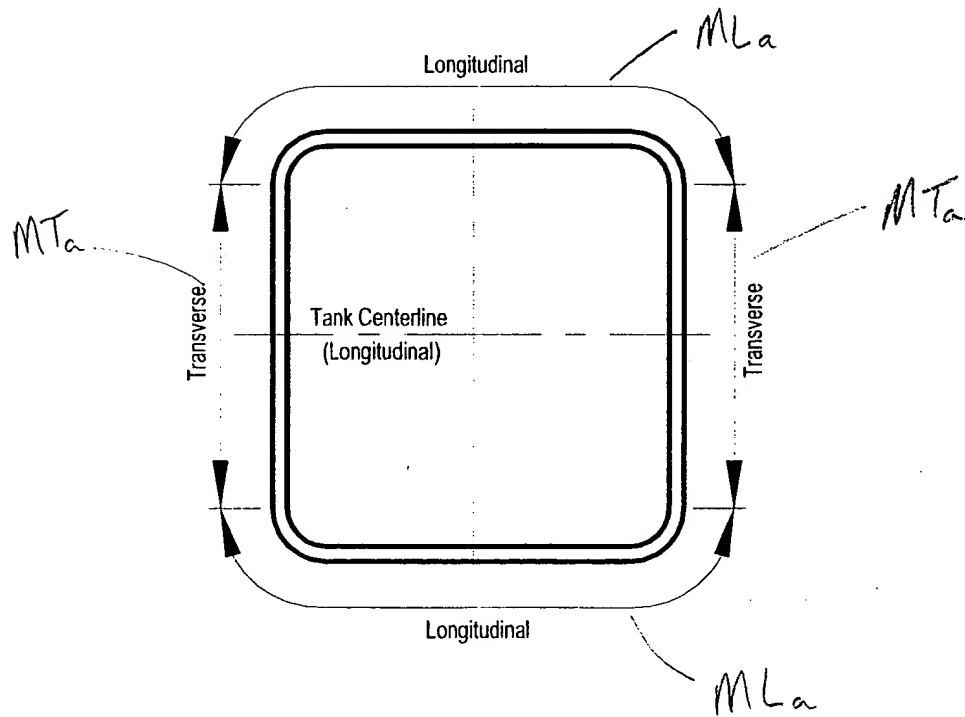


FIGURE 5H

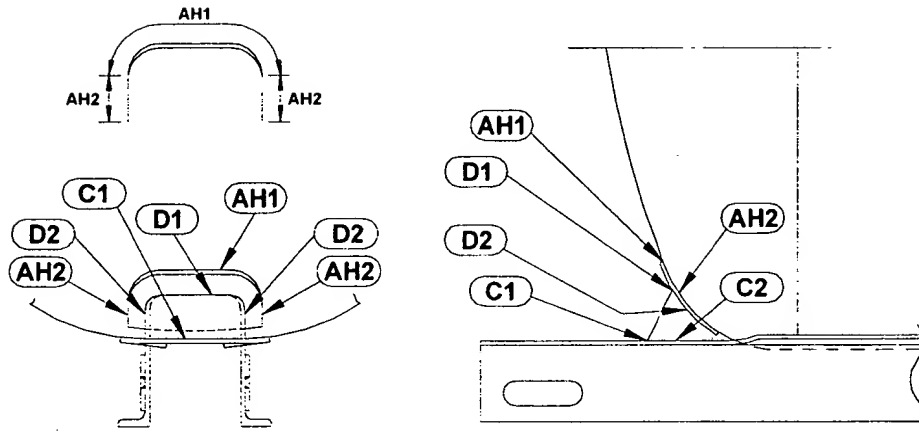
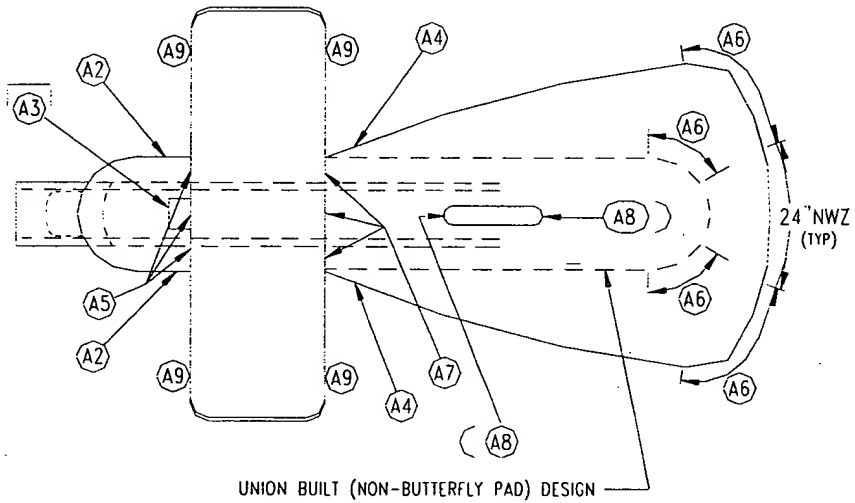
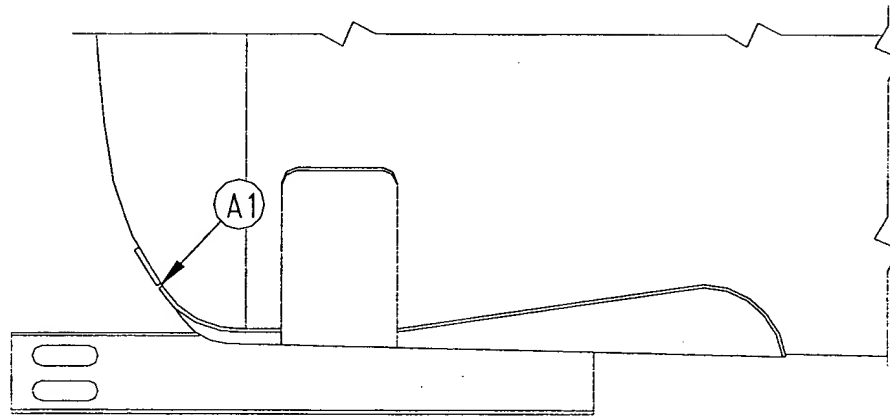


FIGURE 6A



UNION BUILT (NON-BUTTERFLY PAD) DESIGN

FIGURE 6B

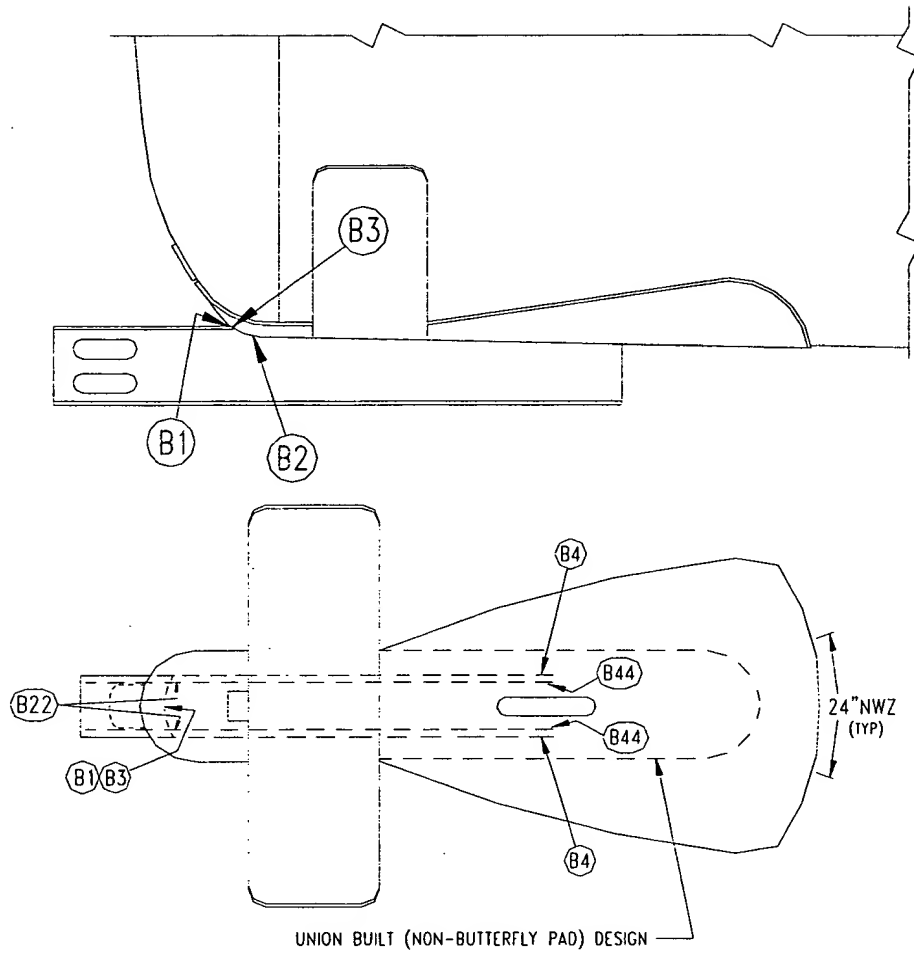


FIGURE 6C

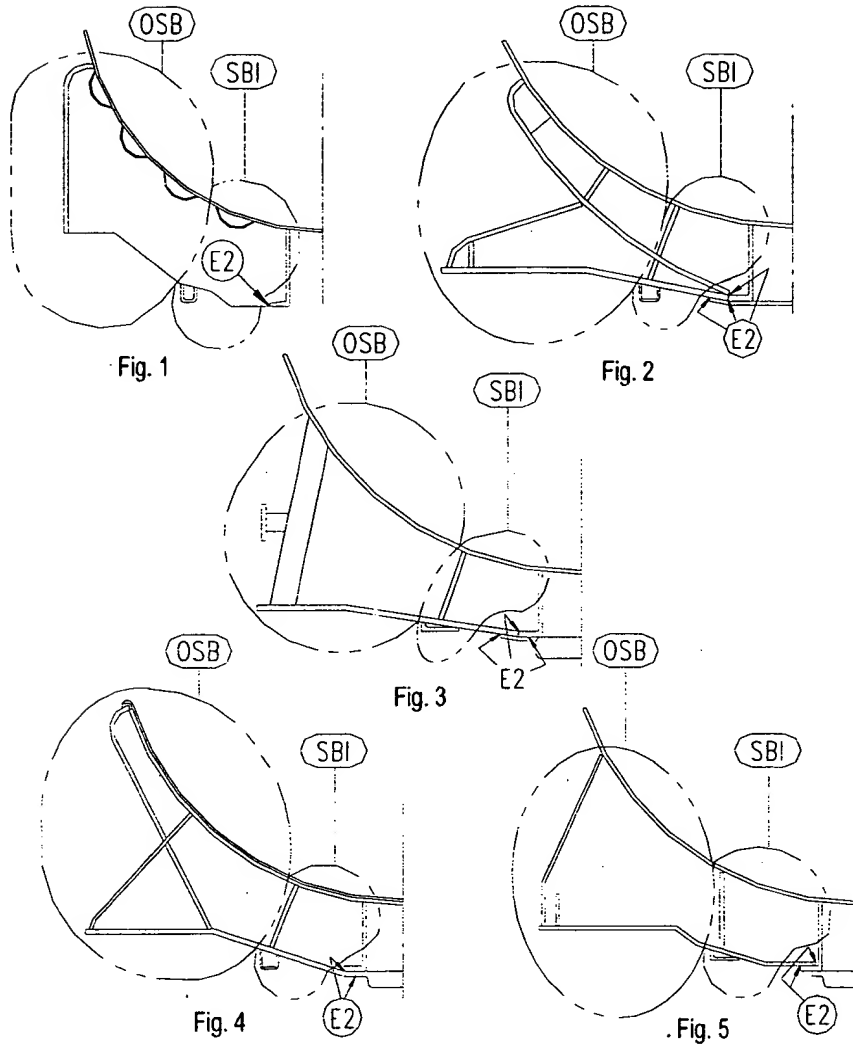


FIGURE 6D

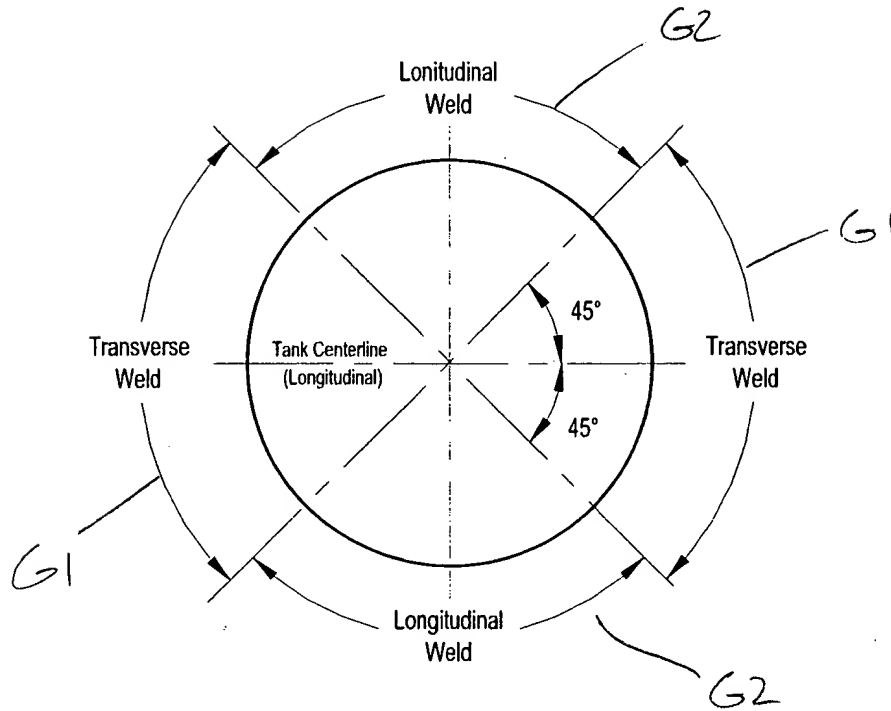


FIGURE 6E

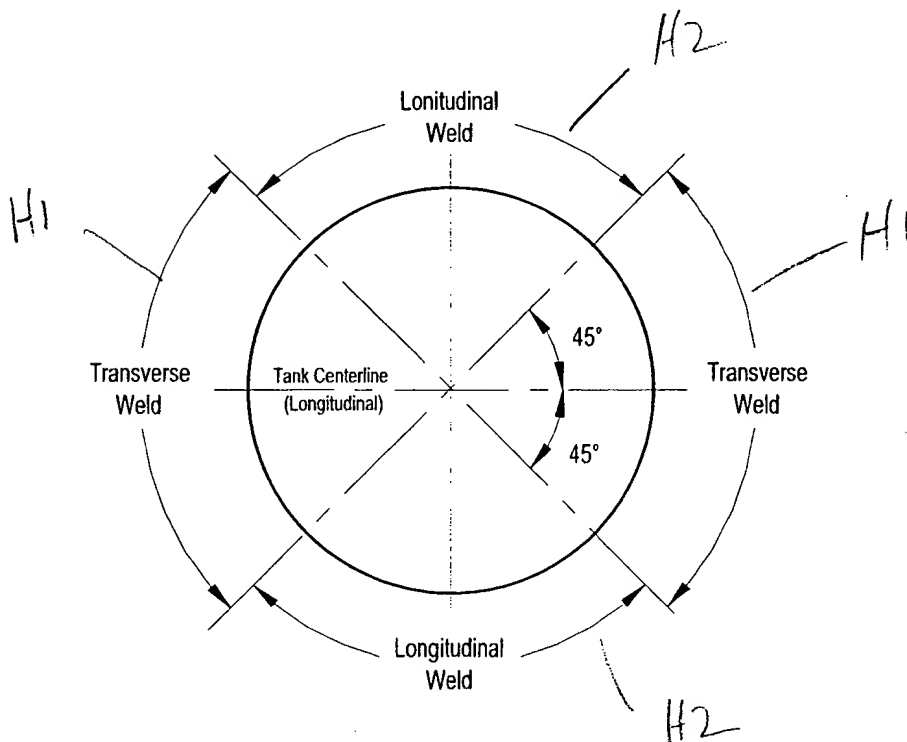


FIGURE 6F

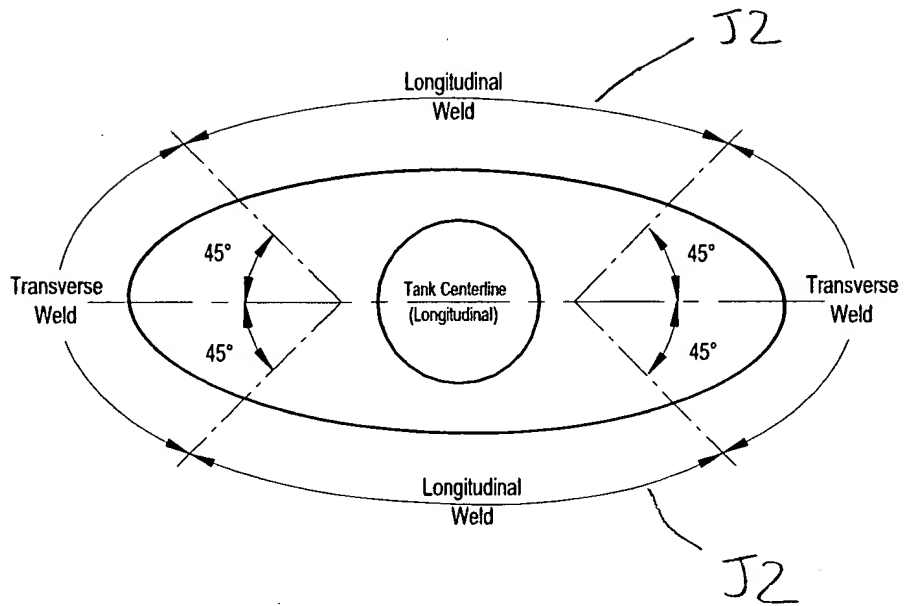


FIGURE 6G

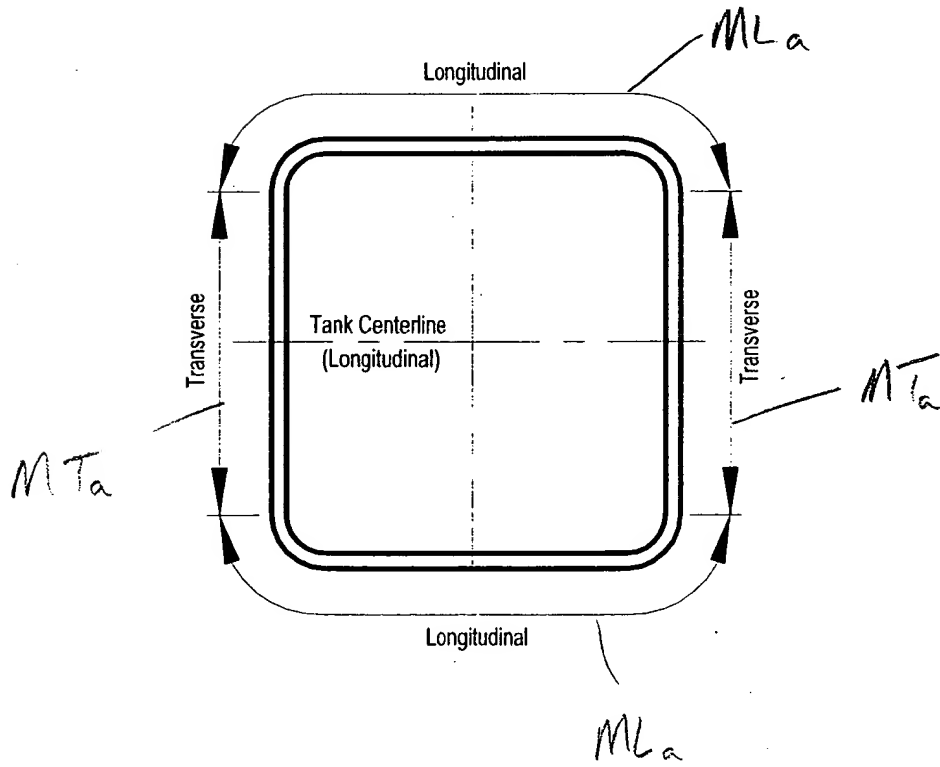


Figure 6H

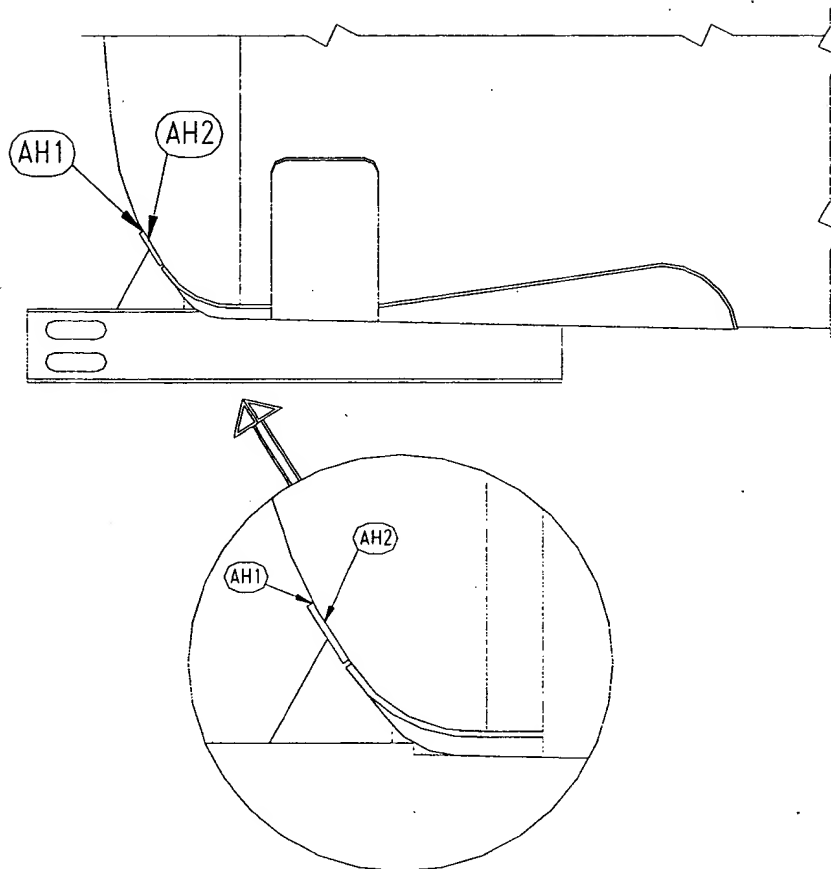


Figure 6I

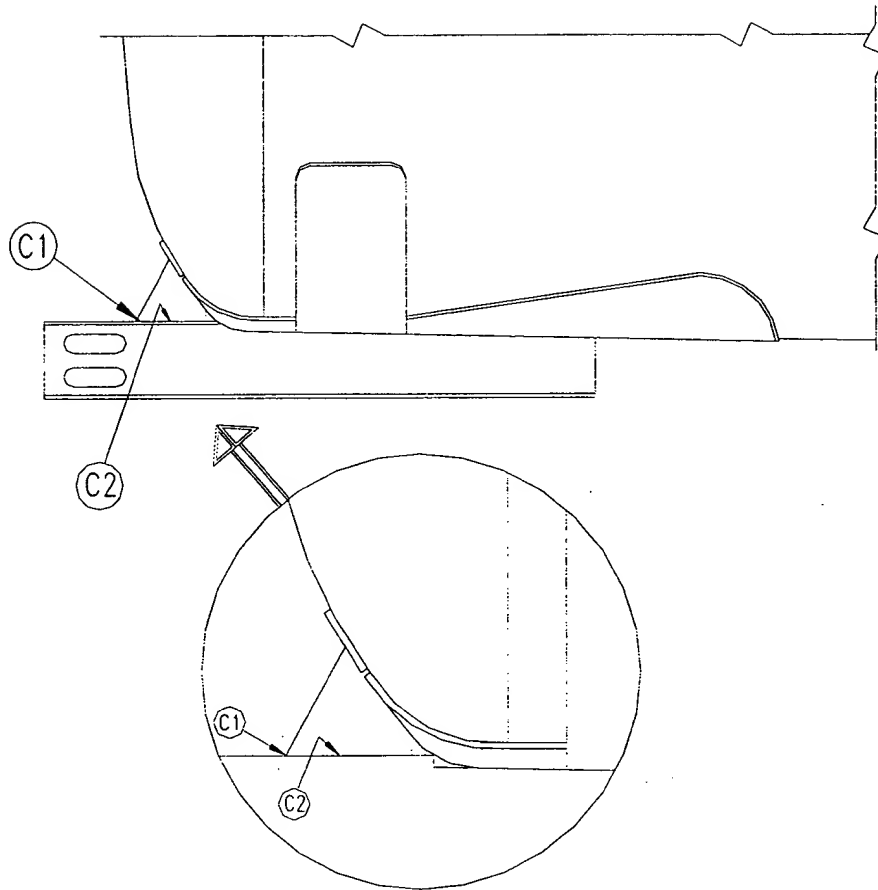


Figure 6J

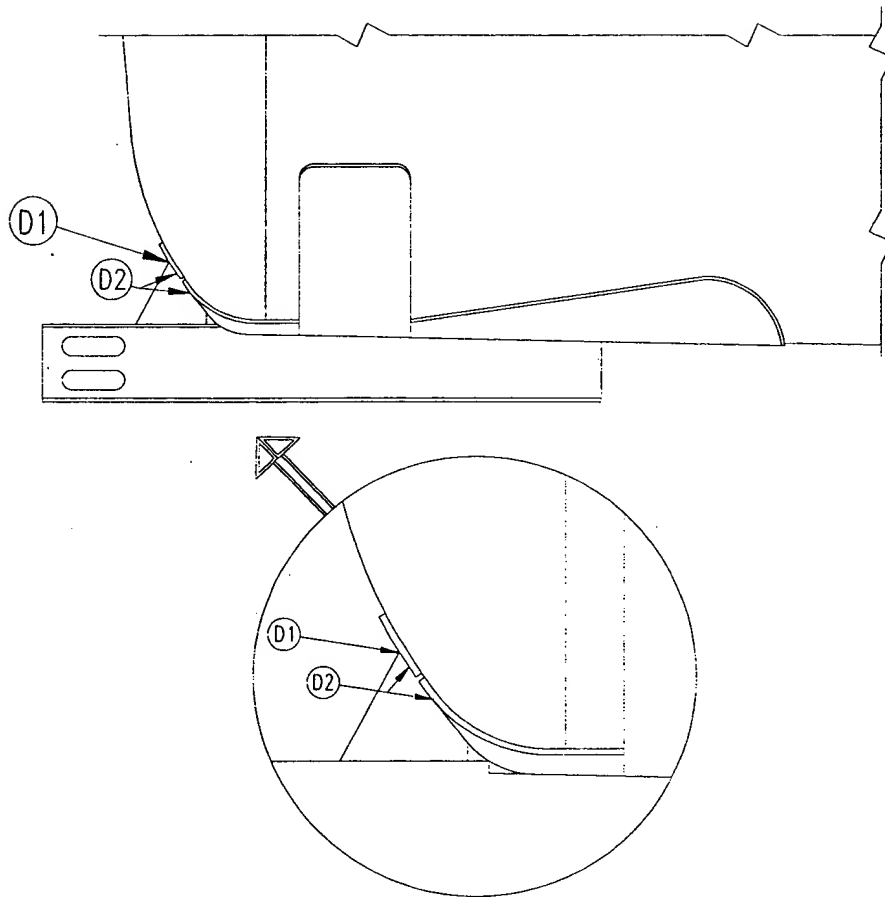


Figure 7A

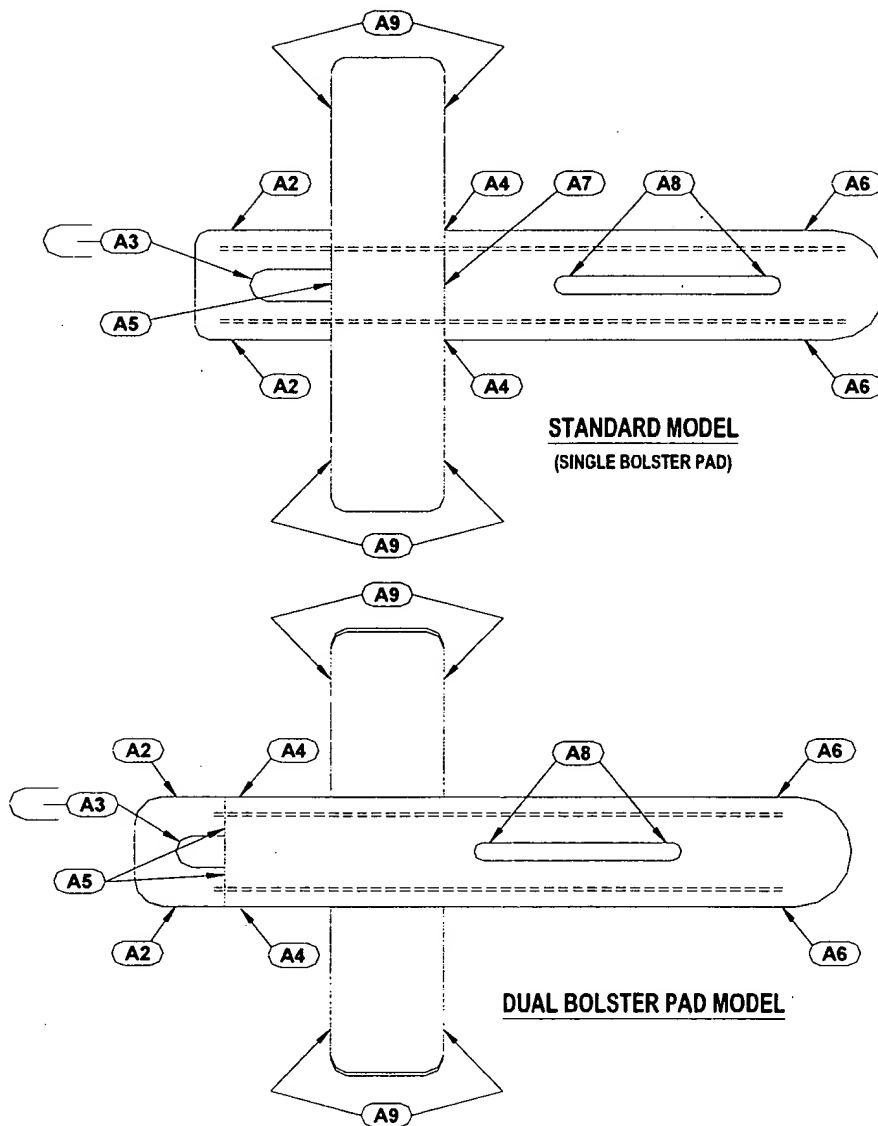


Figure 7B

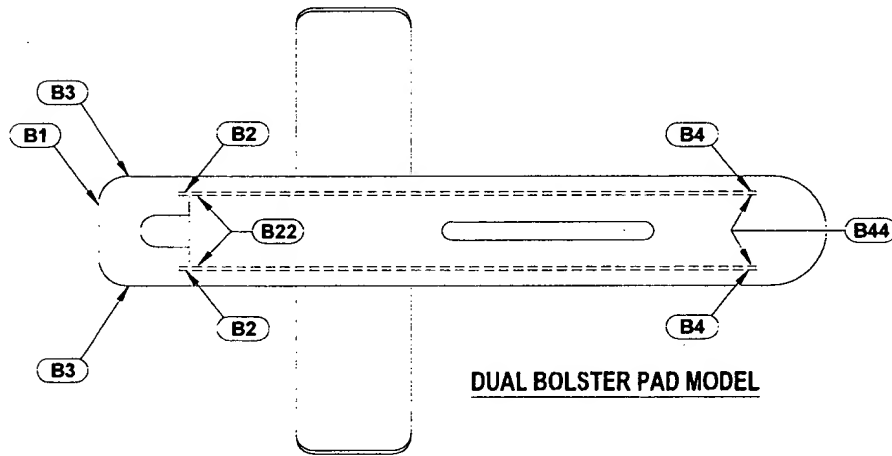
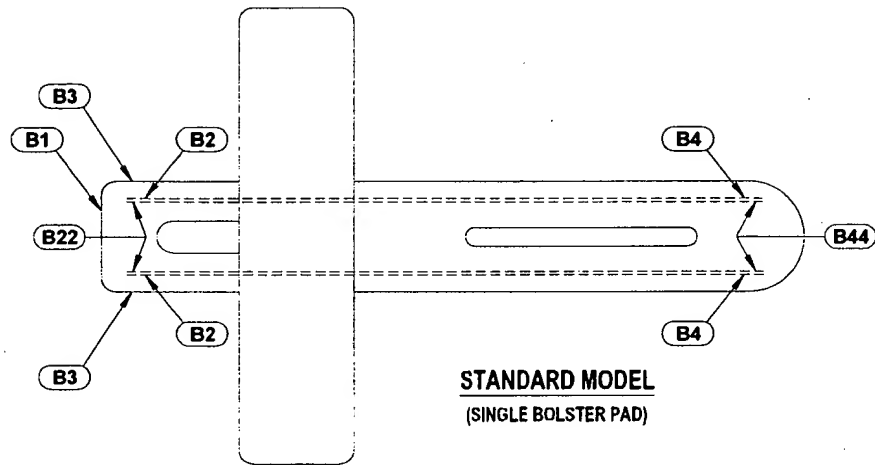


Figure 7C

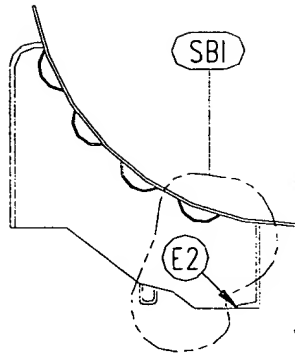


Fig. 1

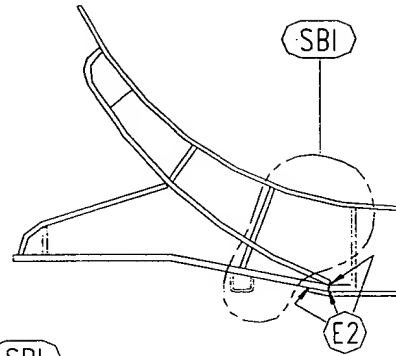


Fig. 2

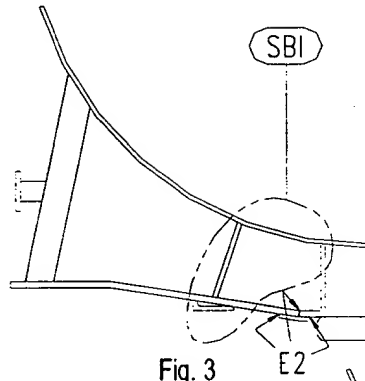


Fig. 3

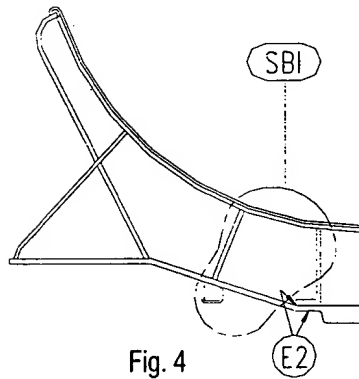


Fig. 4

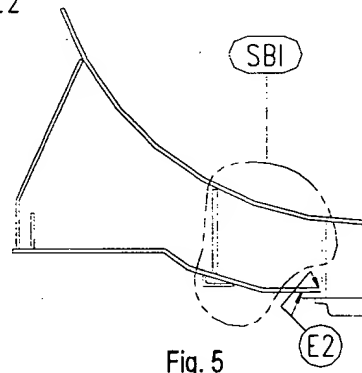


Fig. 5

Figure 7D

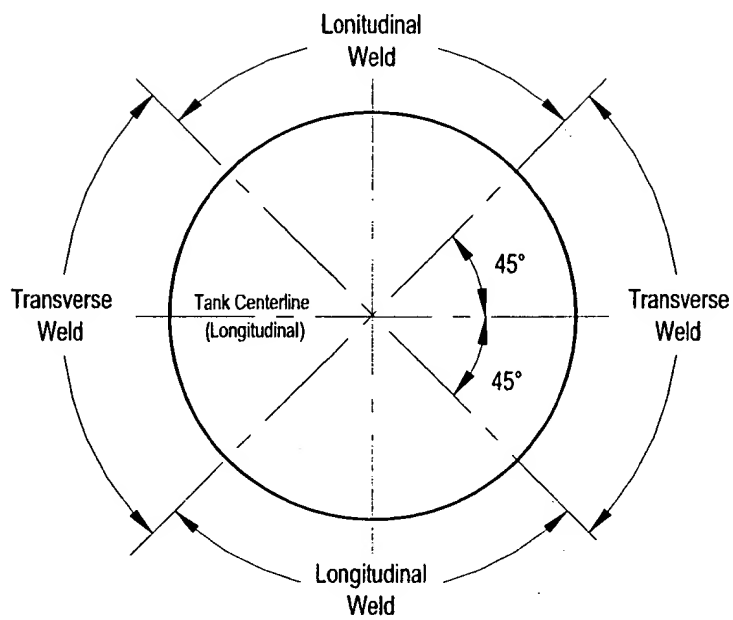


Figure 7E

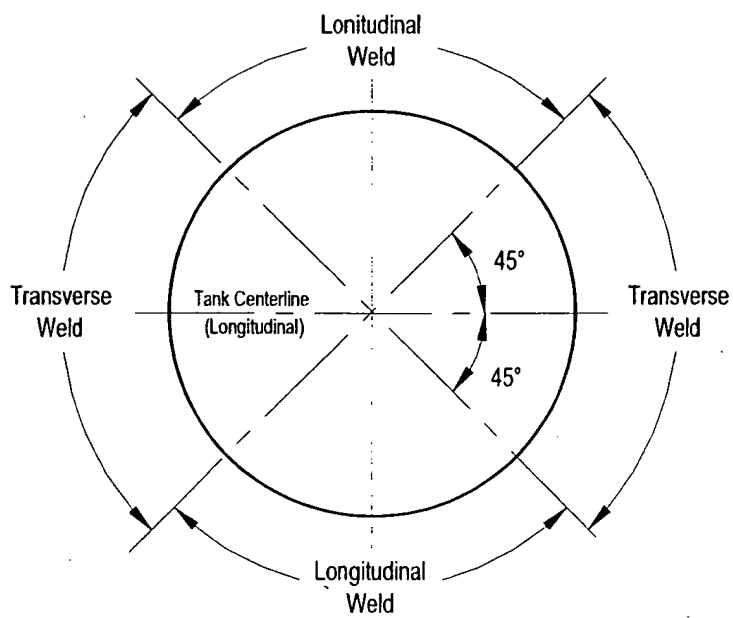


Figure 7F

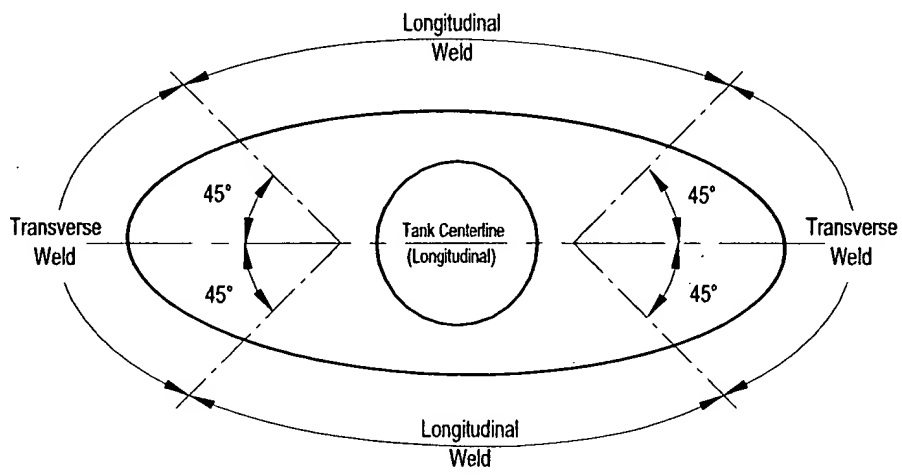


Figure 7G

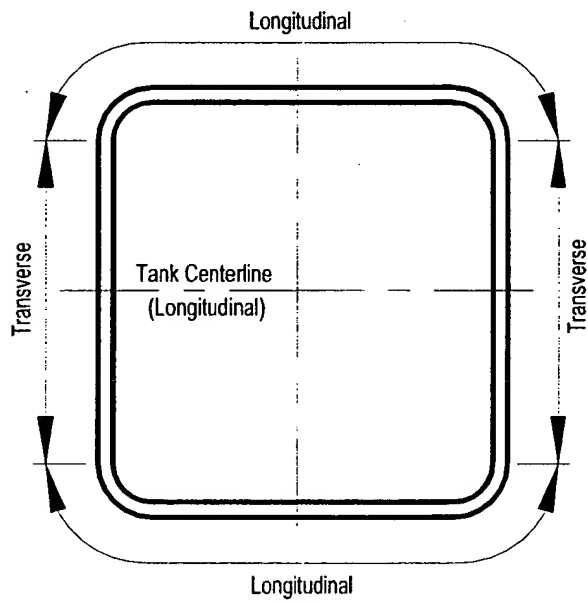


Figure 7H

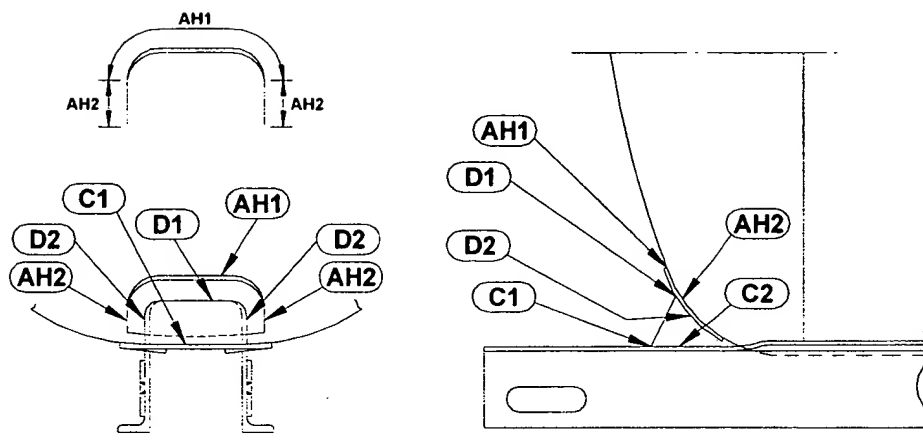


Figure 8A

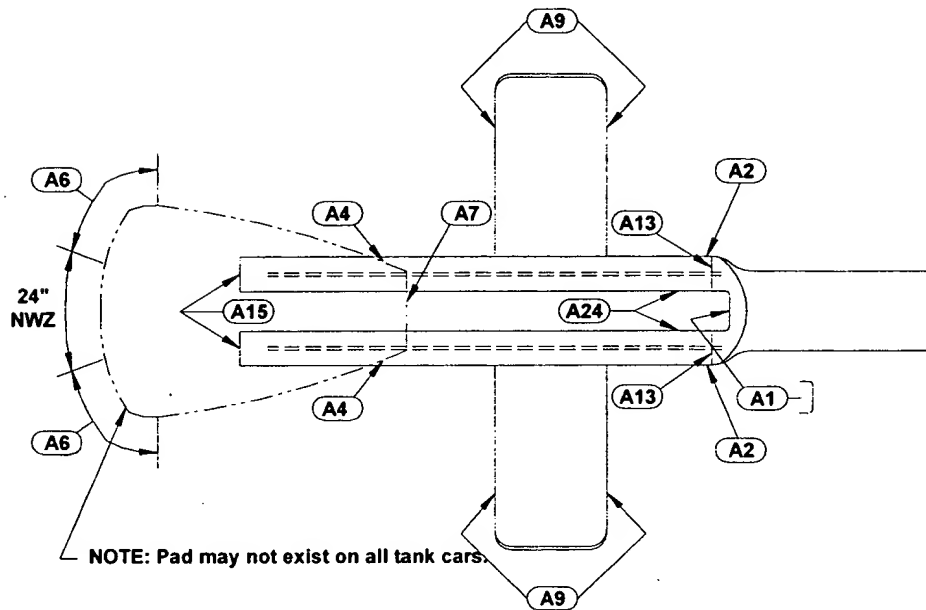


Figure 8B

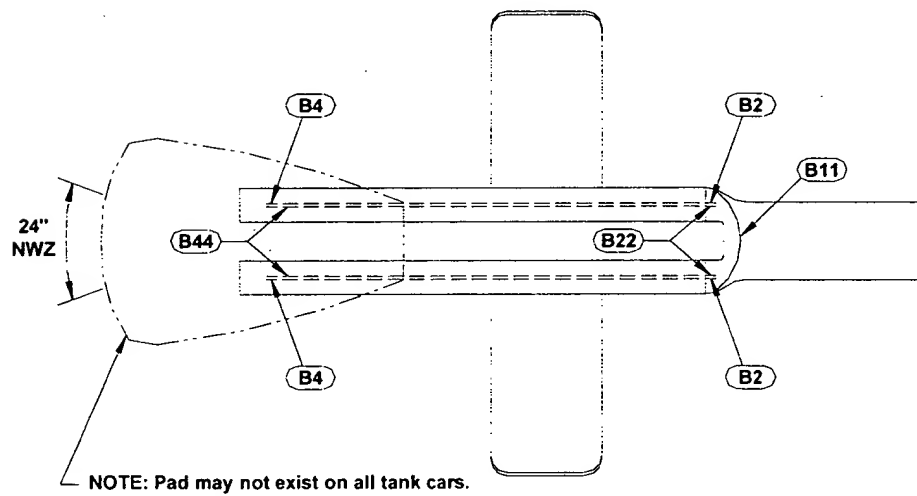


Figure 8C

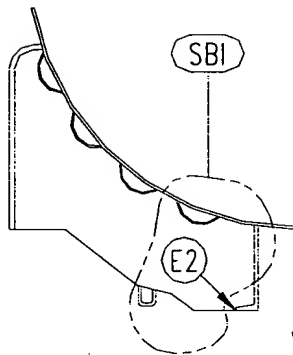


Fig. 1

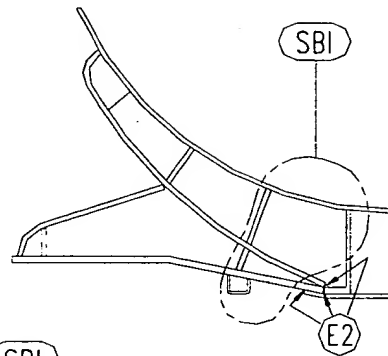


Fig. 2

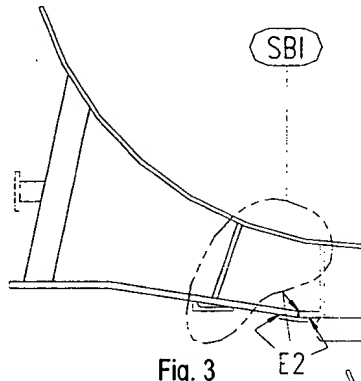


Fig. 3

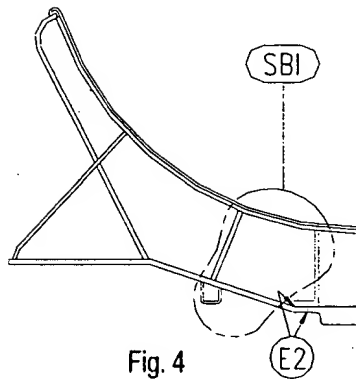


Fig. 4

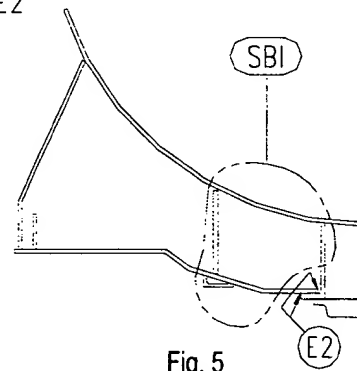


Fig. 5

Figure 8D

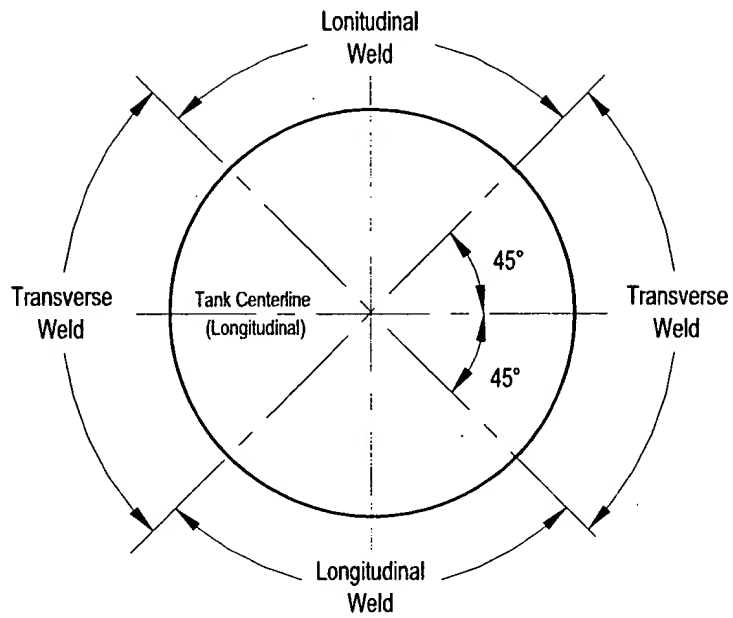


Figure 8E

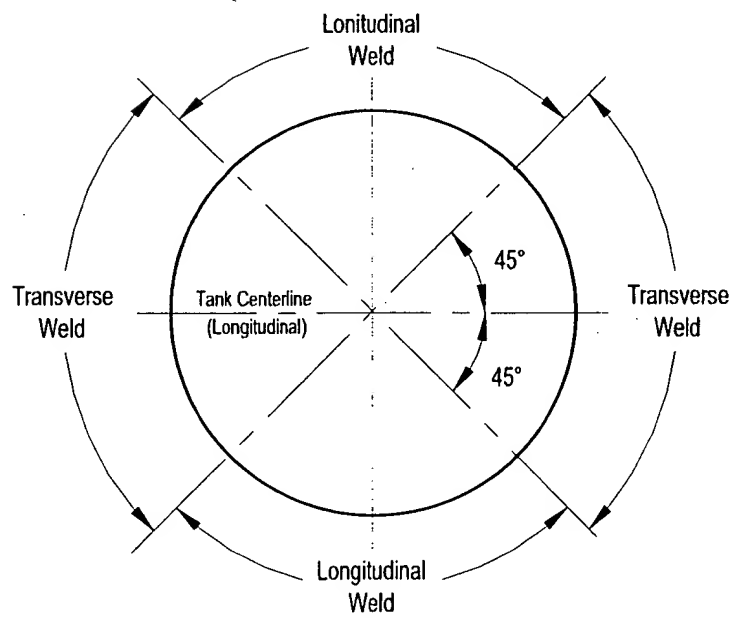


Figure 8F

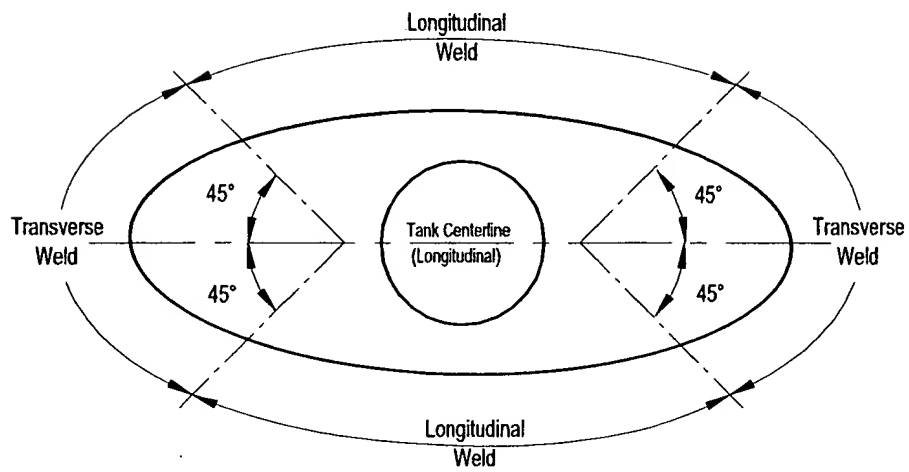


Figure 8G

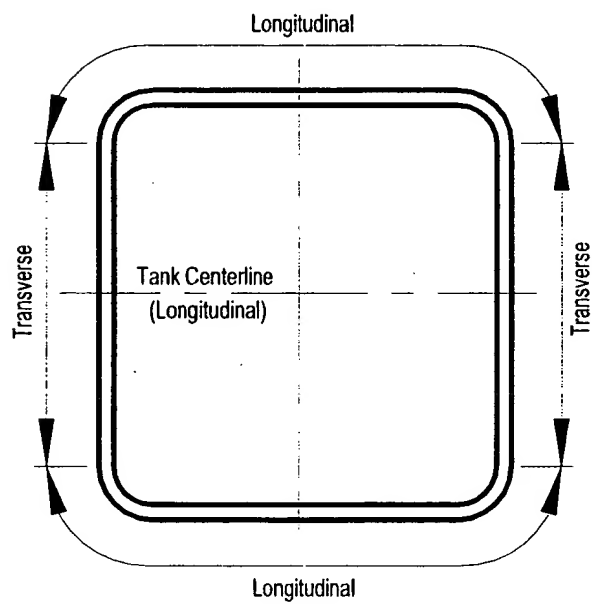


Figure 8H

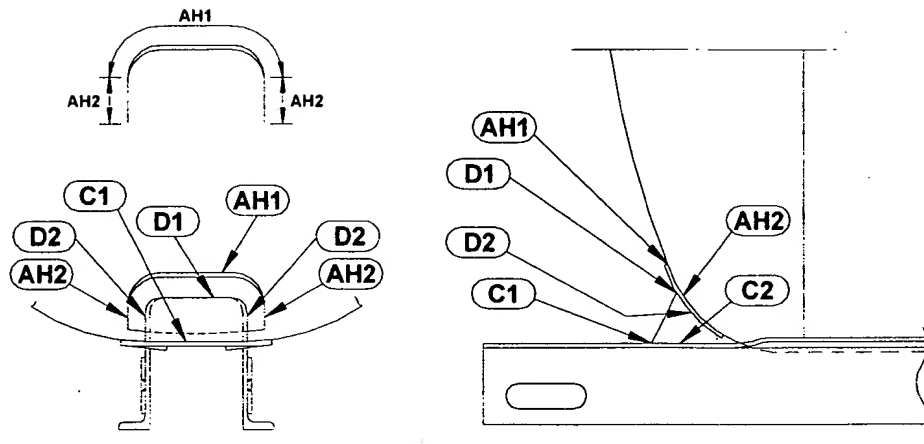


Figure 9A

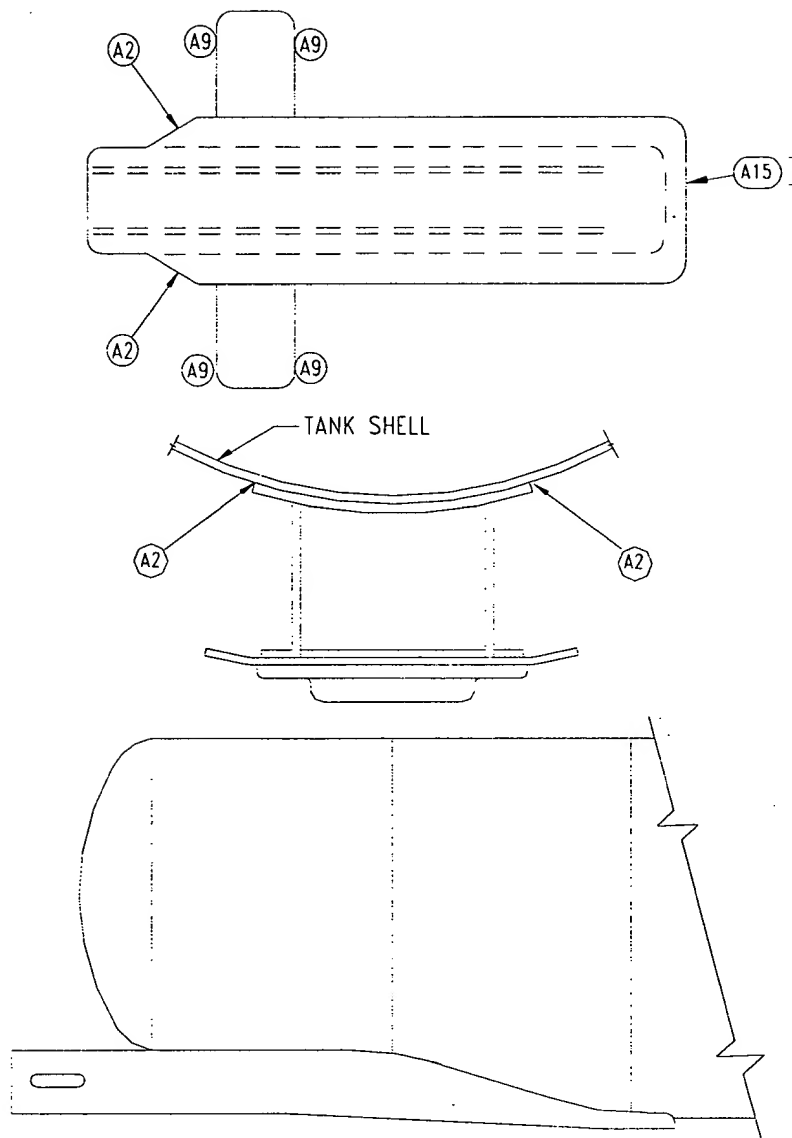


Figure 9B

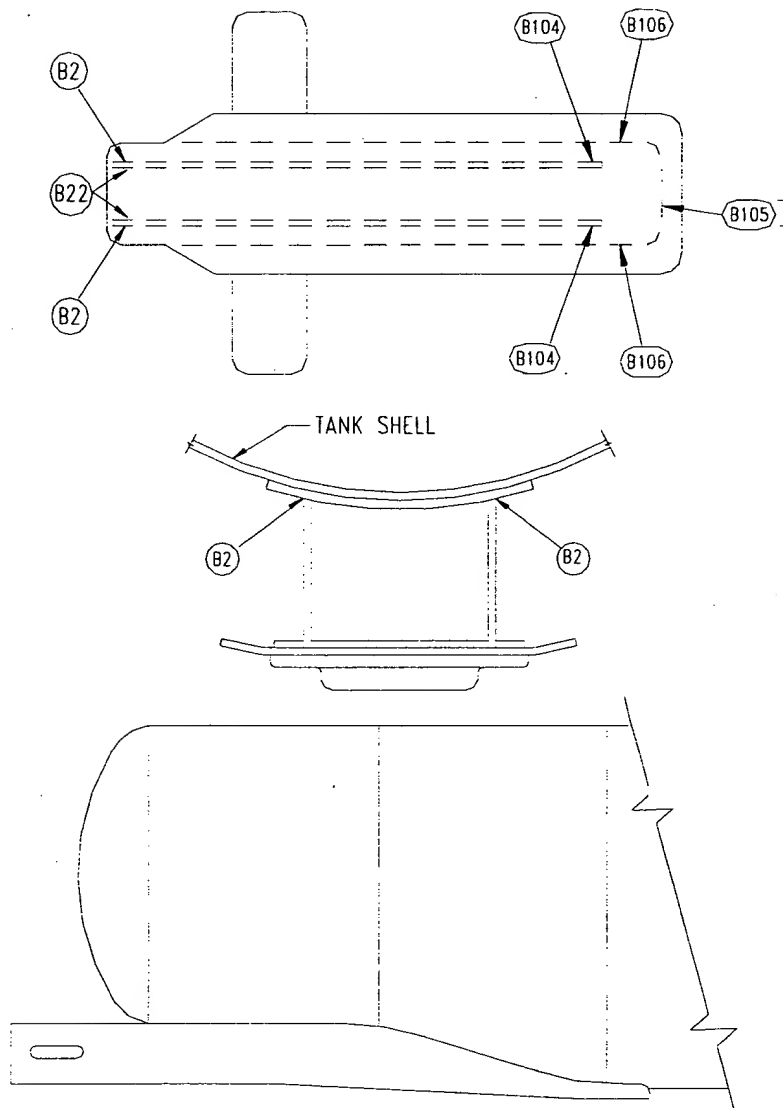


Figure 9C

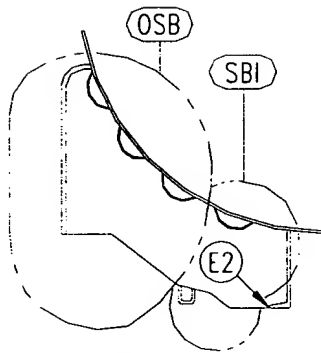


Fig. 1

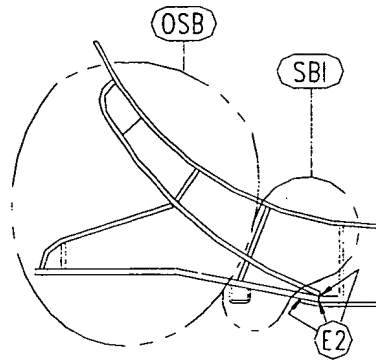


Fig. 2

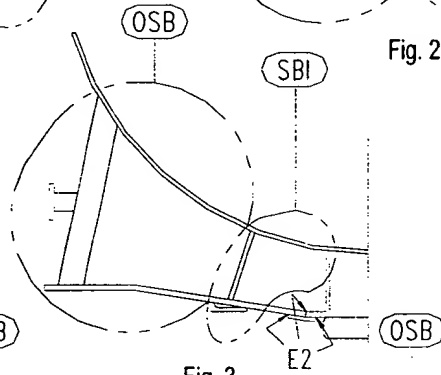


Fig. 3

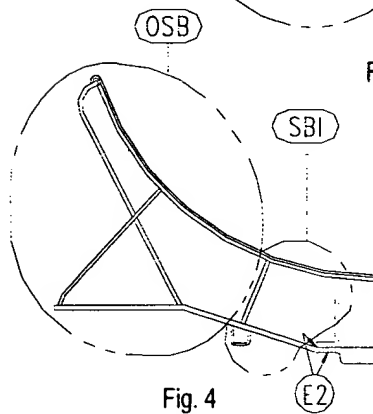


Fig. 4

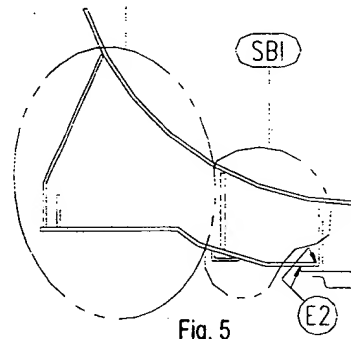


Fig. 5

Figure 9D

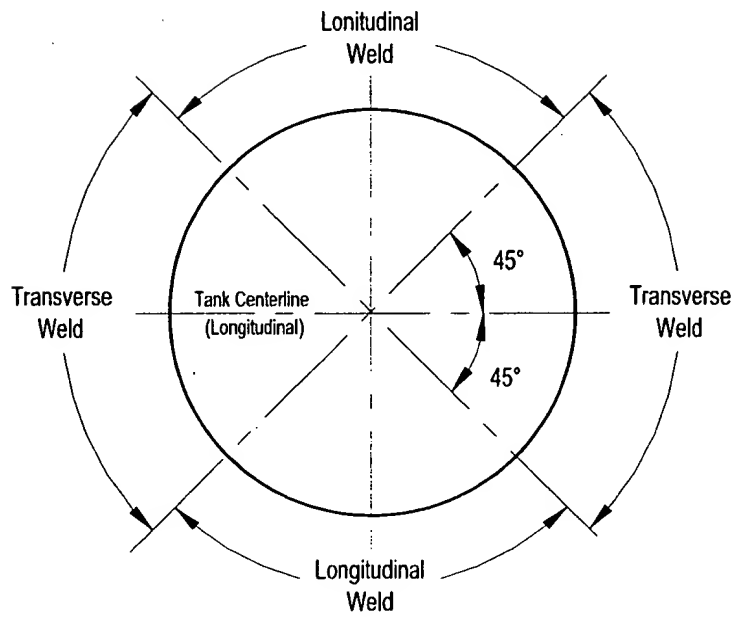


Figure 9E

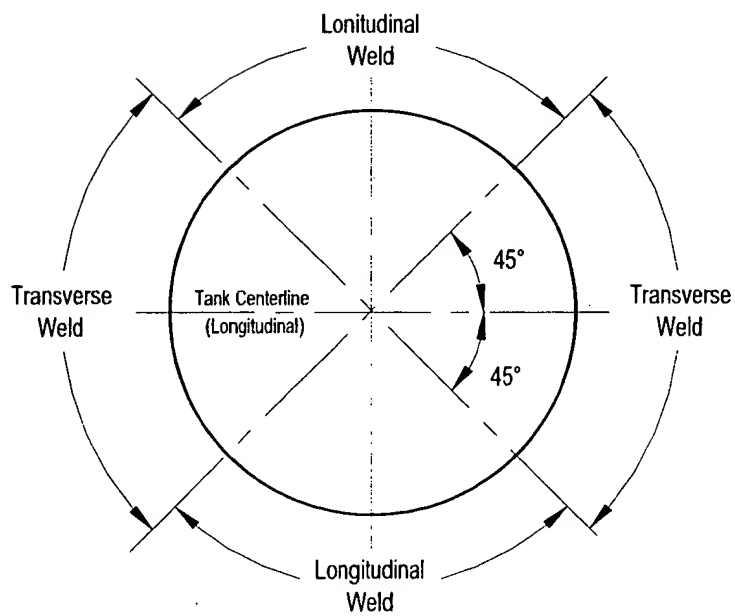


Figure 9F

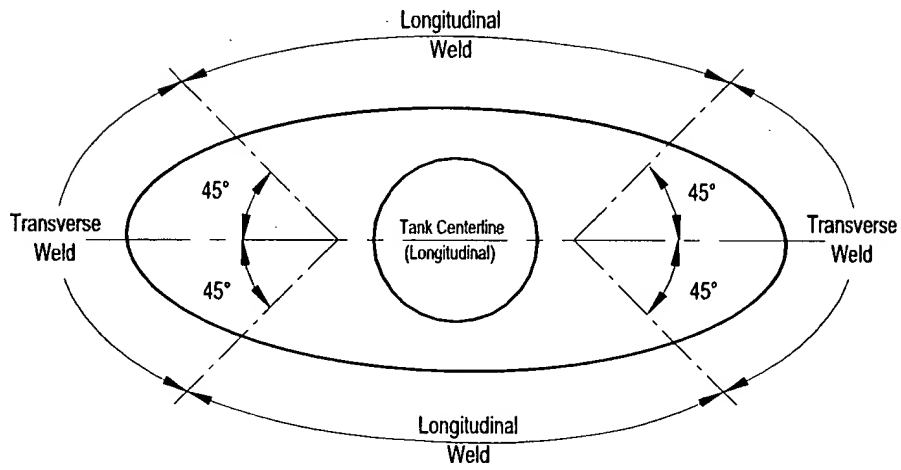


Figure 9G

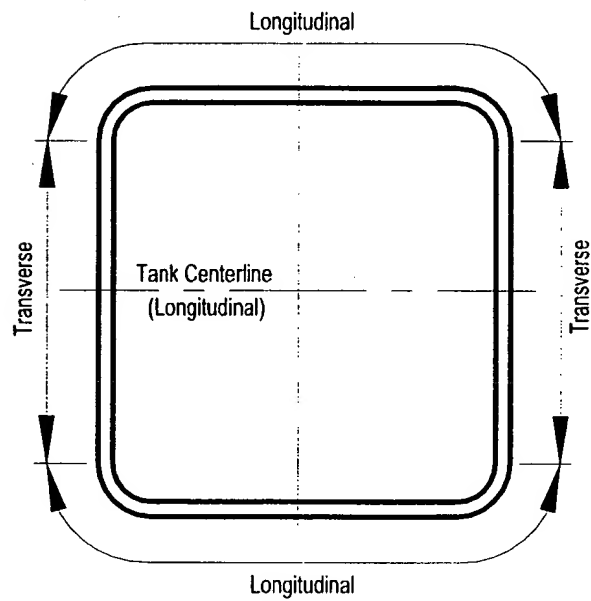


FIGURE 10A

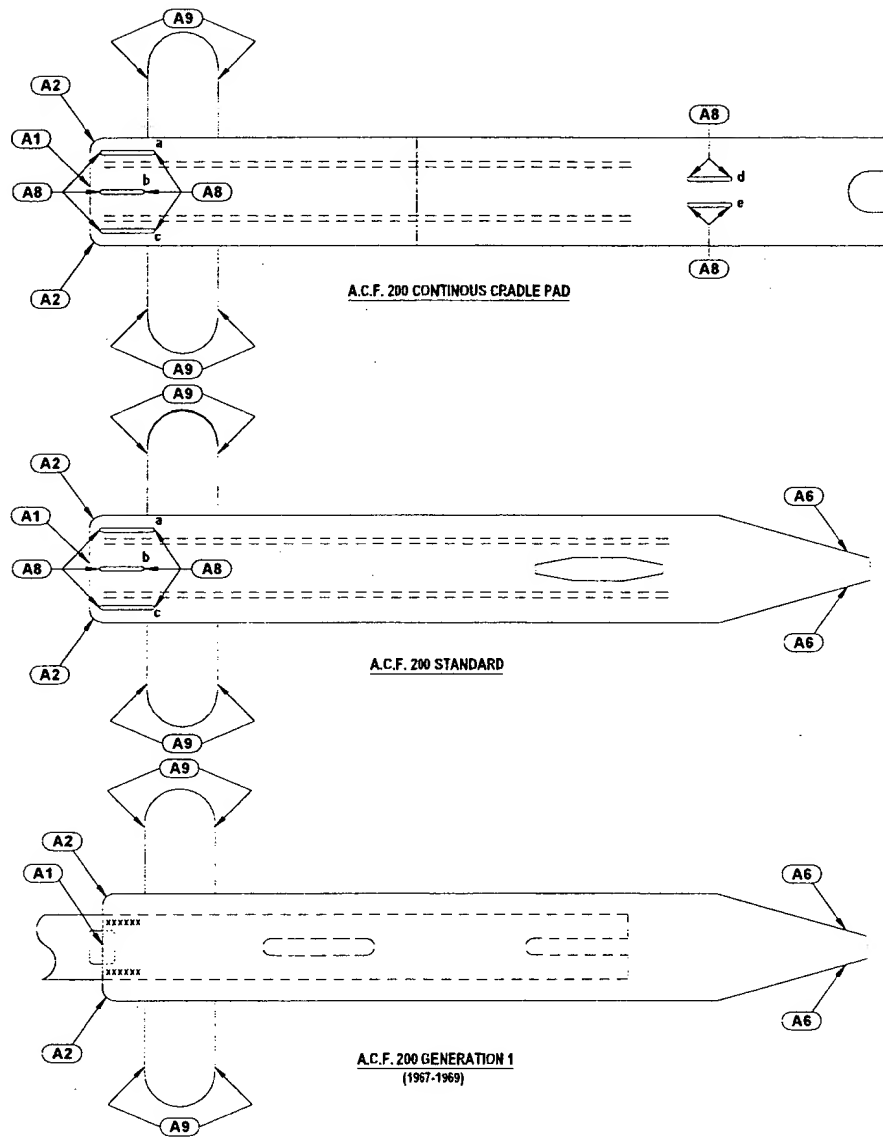
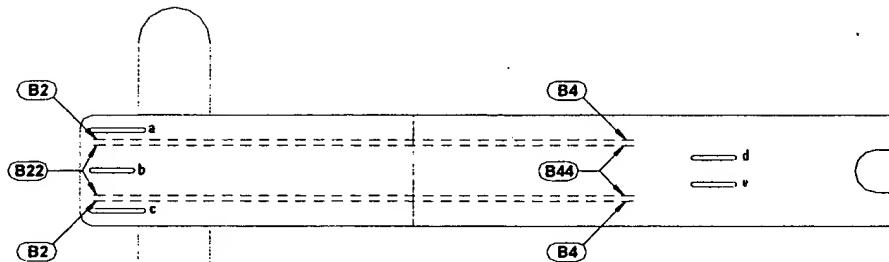
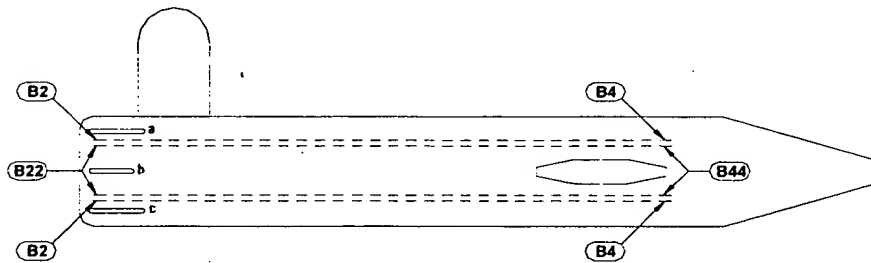


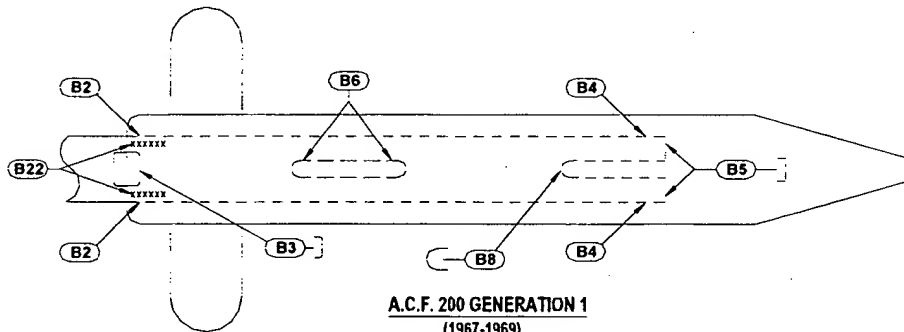
FIGURE 10B



A.C.F. 200 CONTINUOUS CRADLE PAD



A.C.F. 200 STANDARD



A.C.F. 200 GENERATION 1
(1967-1969)

FIGURE 10C

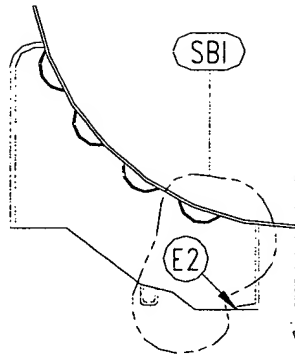


Fig. 1

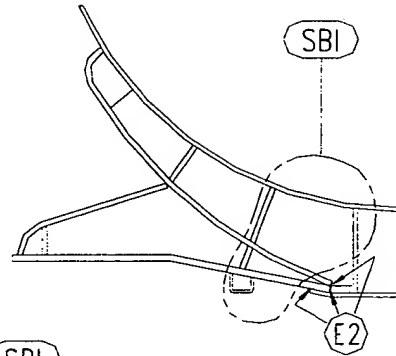


Fig. 2

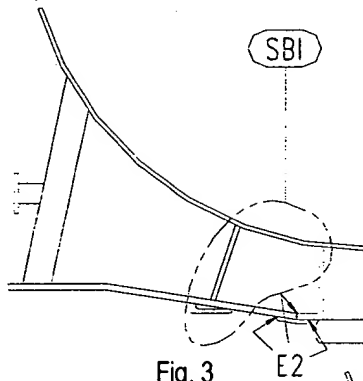


Fig. 3

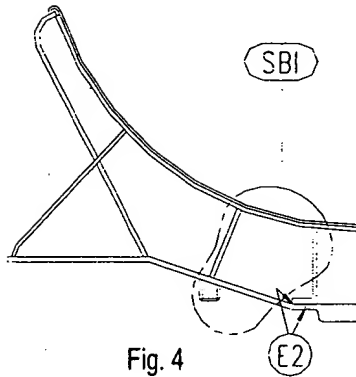


Fig. 4

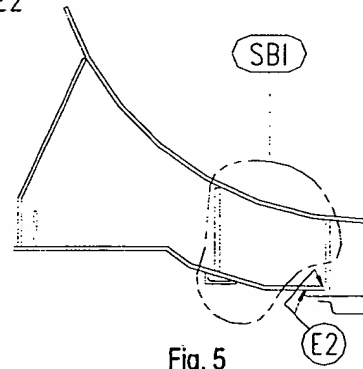


Fig. 5

FIGURE 10D

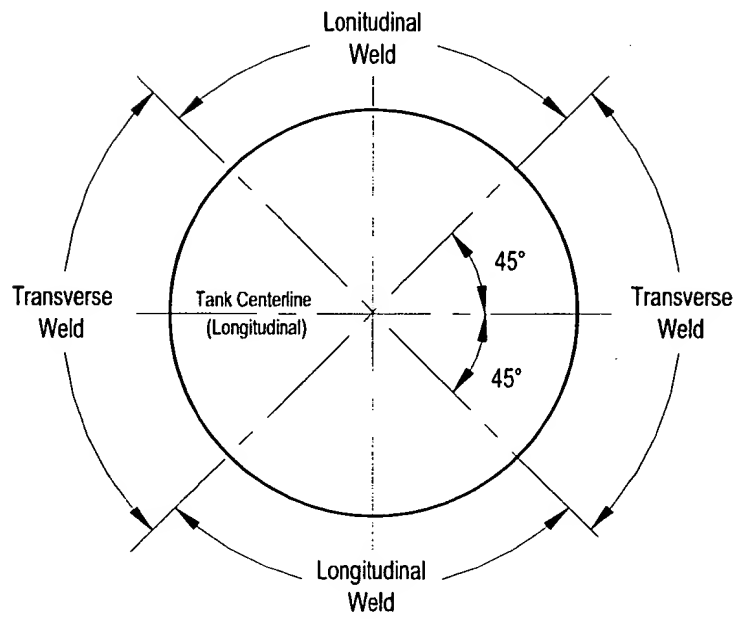


FIGURE 10E

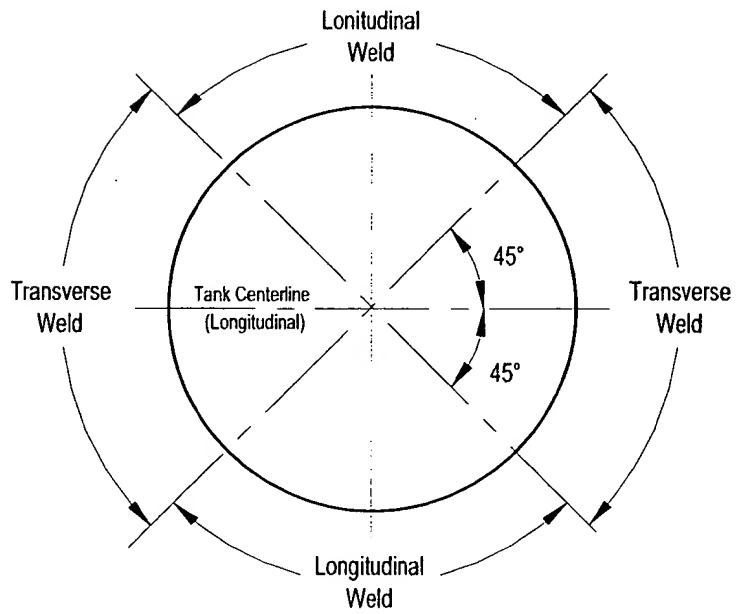


FIGURE 10F

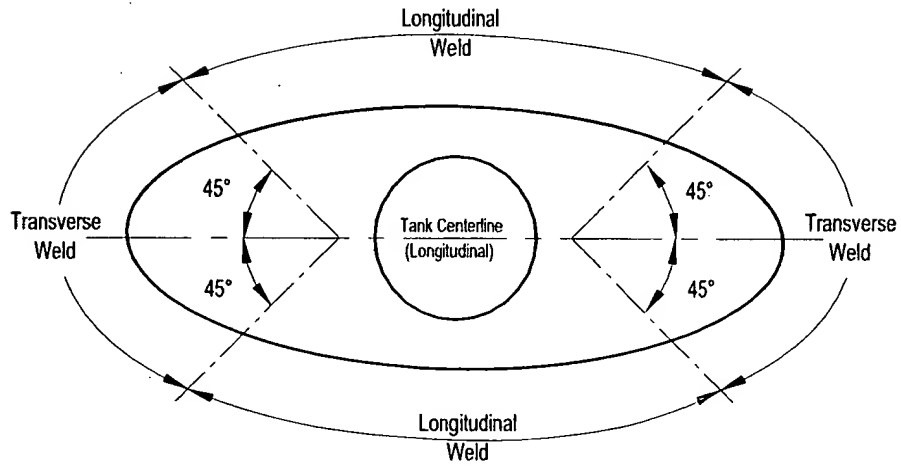


FIGURE 10G

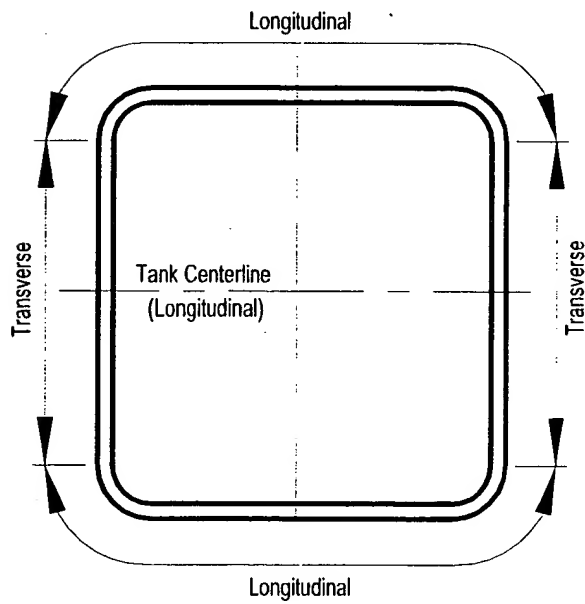
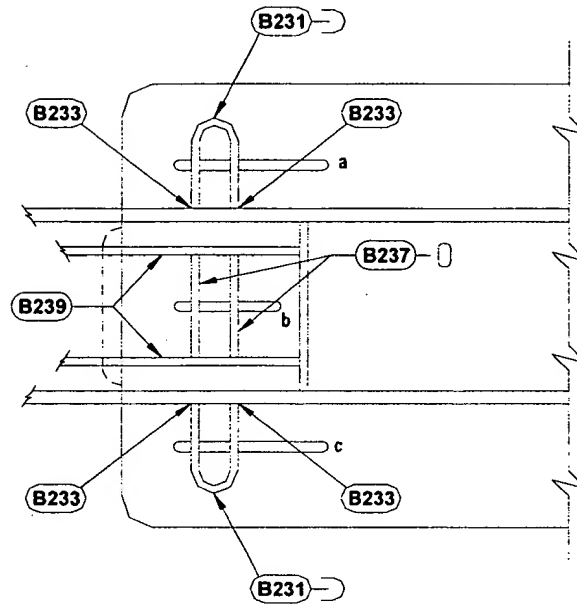
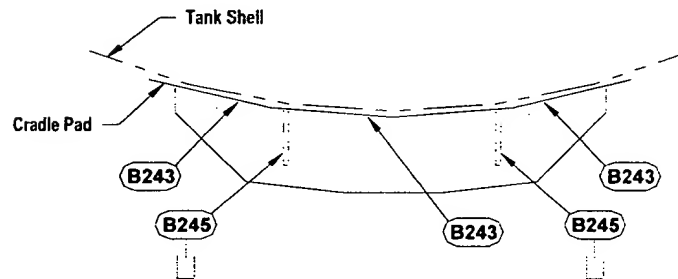


FIGURE 10H



NOTE: Outboard of bolster, wing bar not shown for clarity.



NOTE: Inboard of bolster at end of cradle pad, looking outboard.

FIGURE 10I

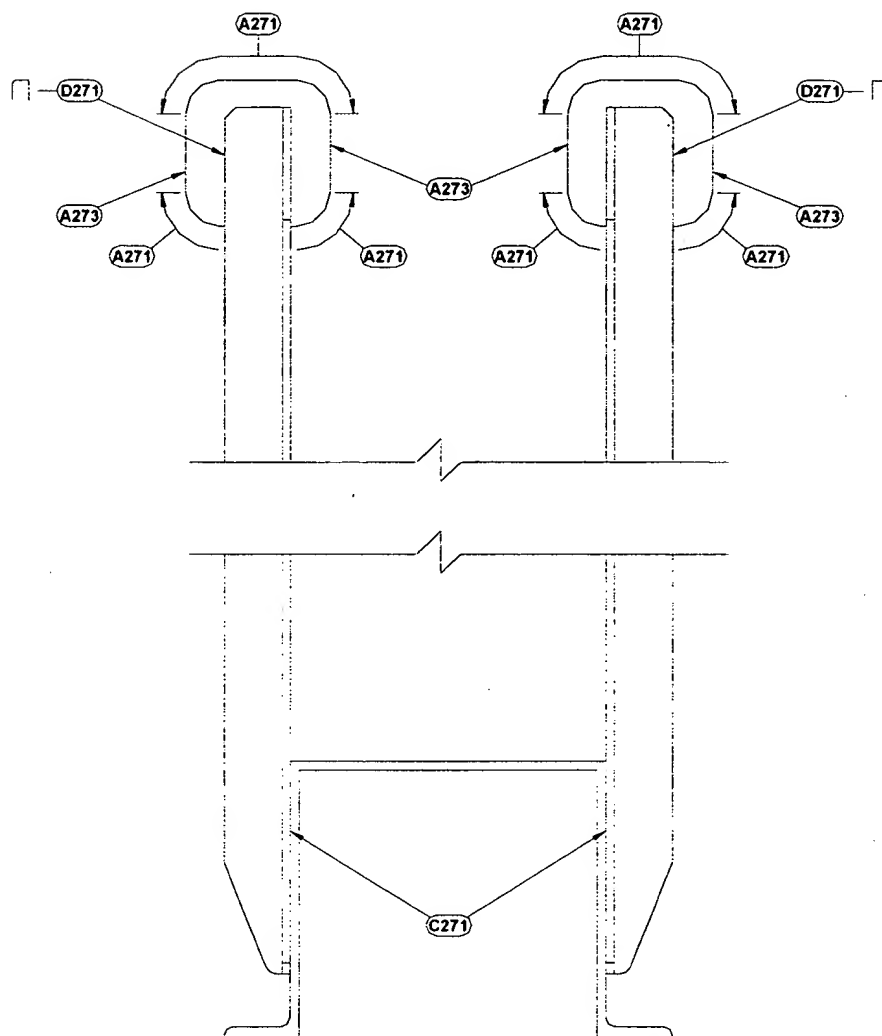
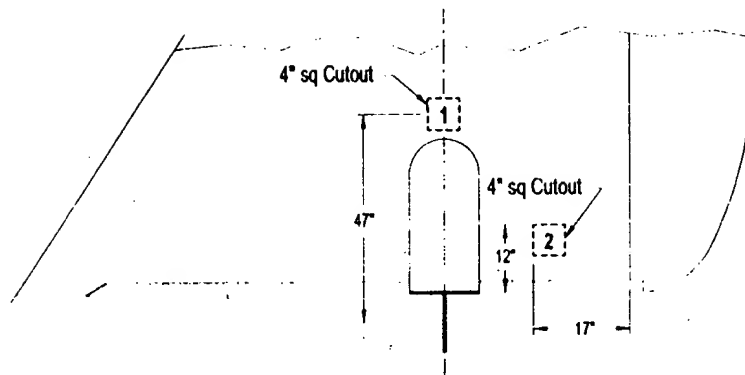


Figure 10J



Drawings Not To Scale
Jacket Removed for Clarity

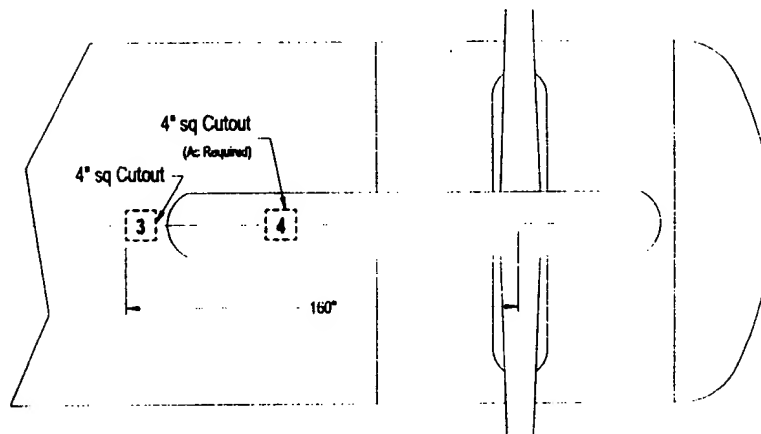


FIGURE 11A

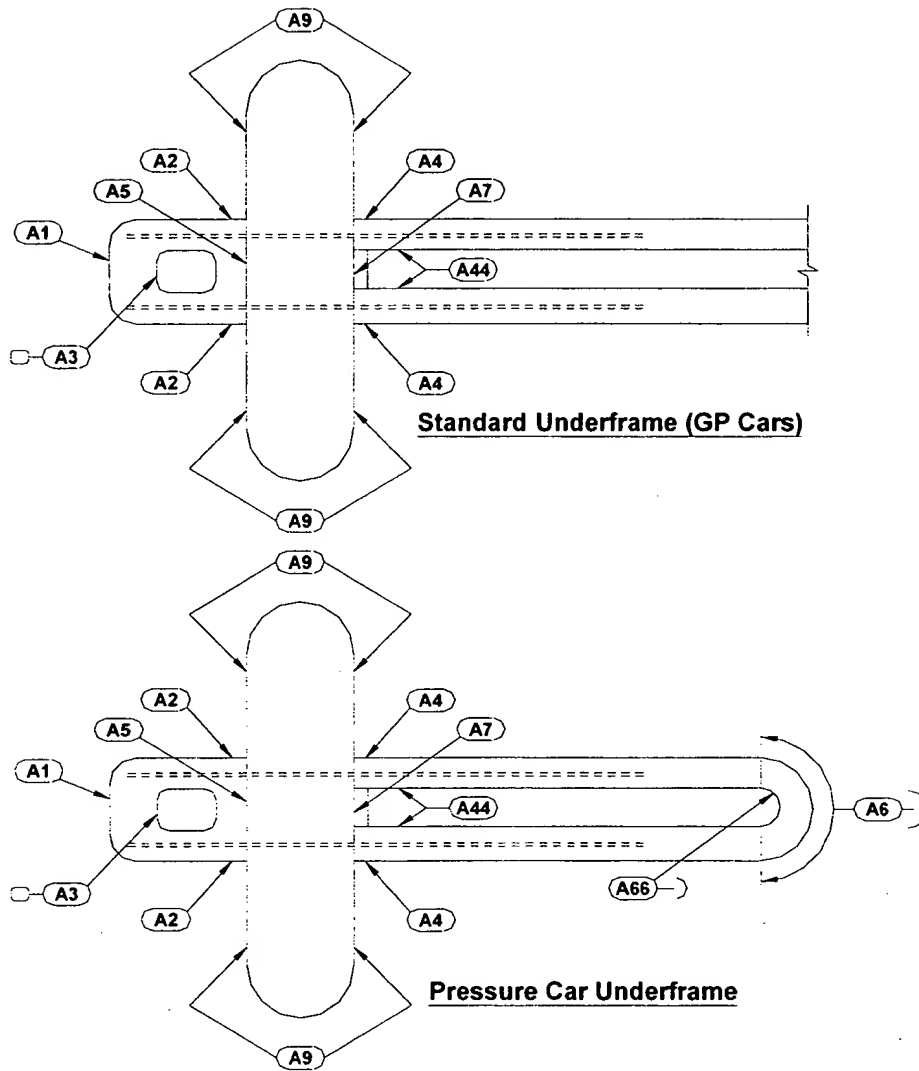


FIGURE 11B

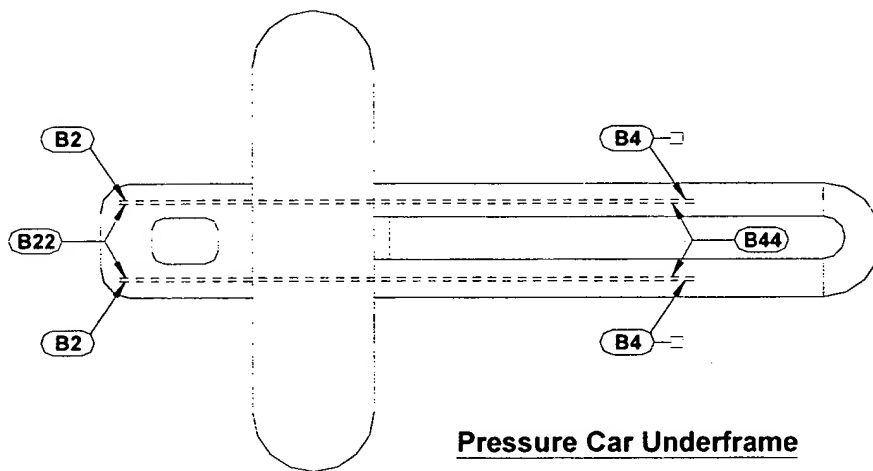
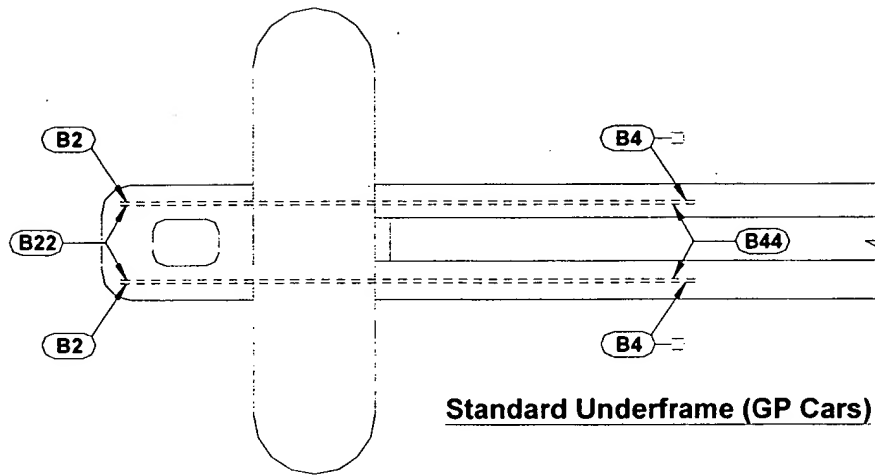


FIGURE 11C

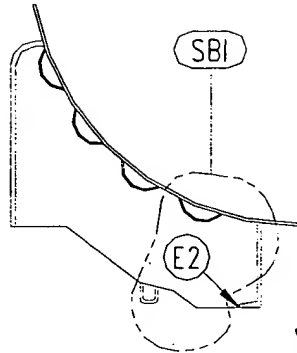


Fig. 1

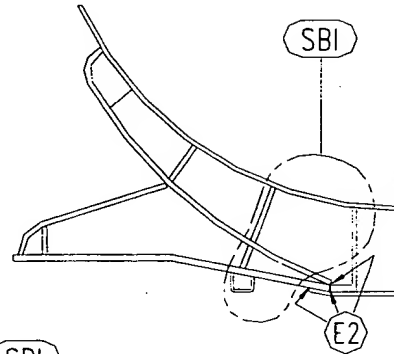


Fig. 2

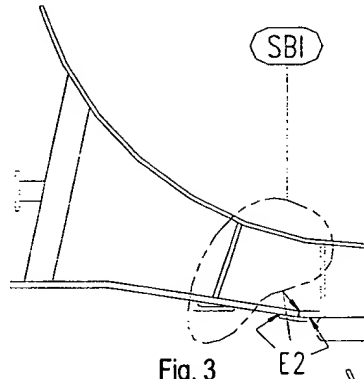


Fig. 3

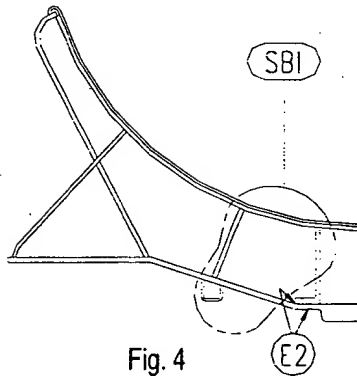


Fig. 4

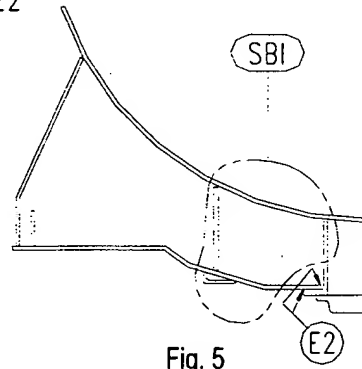


Fig. 5

FIGURE 11D

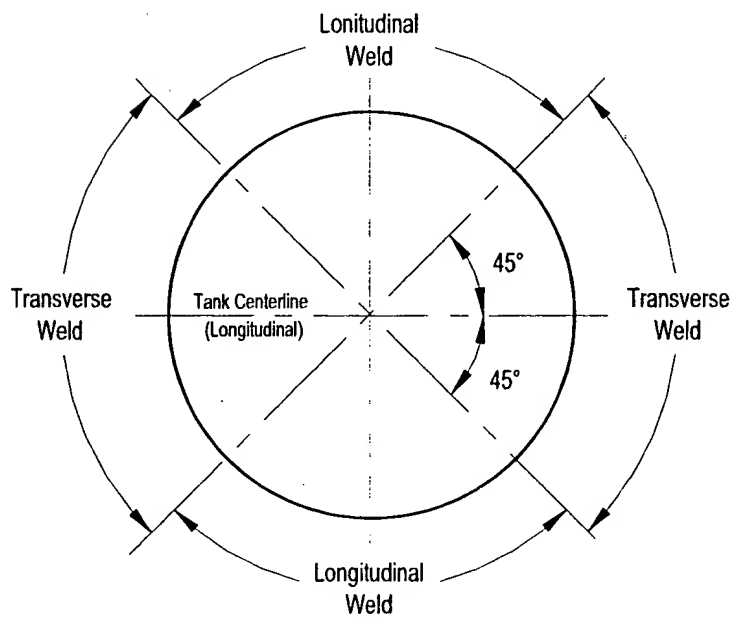


FIGURE 11E

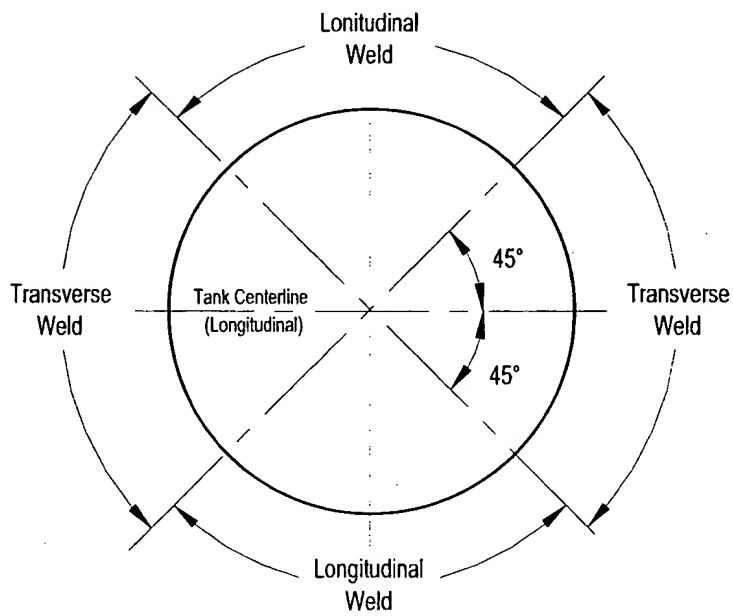


FIGURE 11F

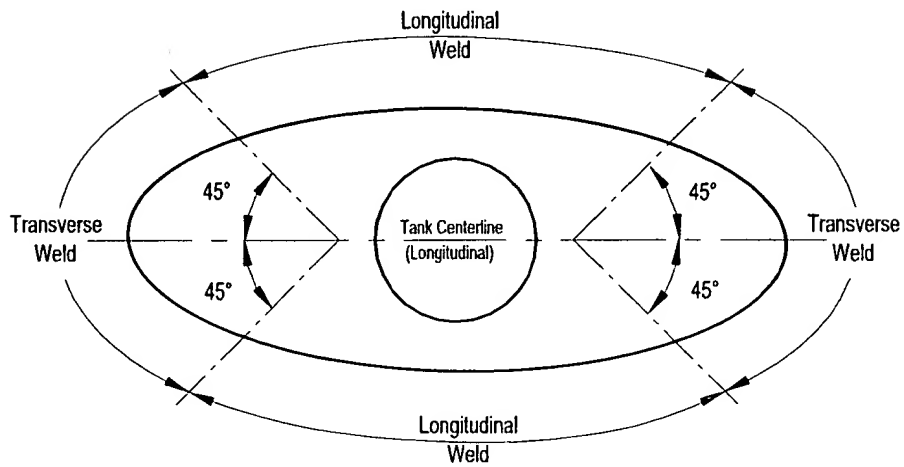


FIGURE 11G

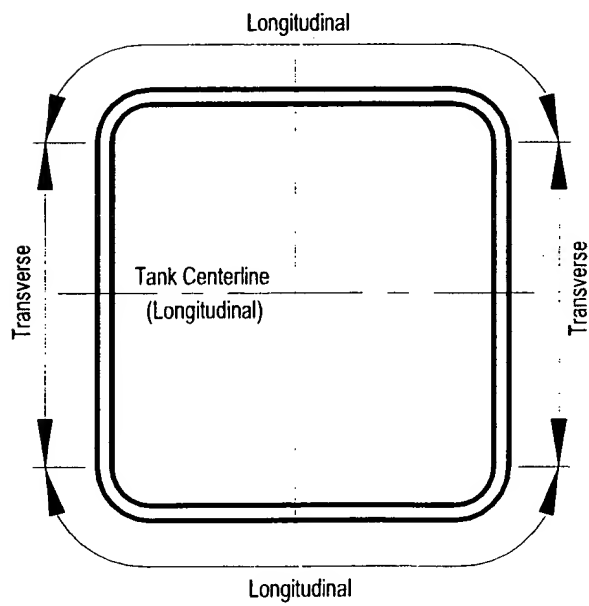


FIGURE 11H

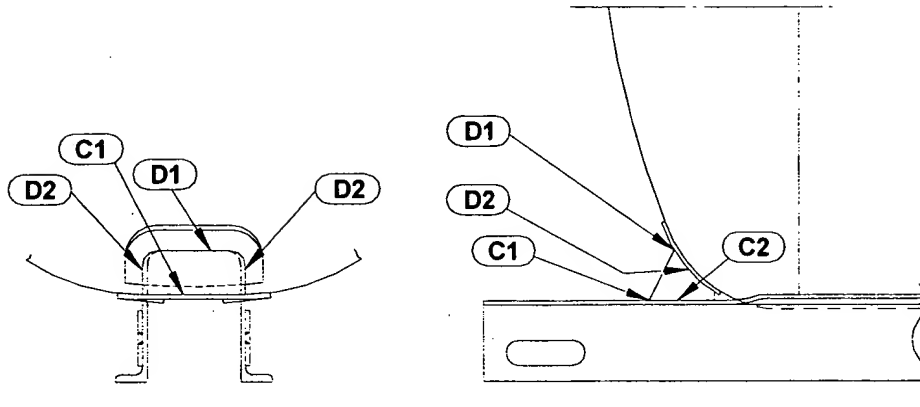


FIGURE 12A

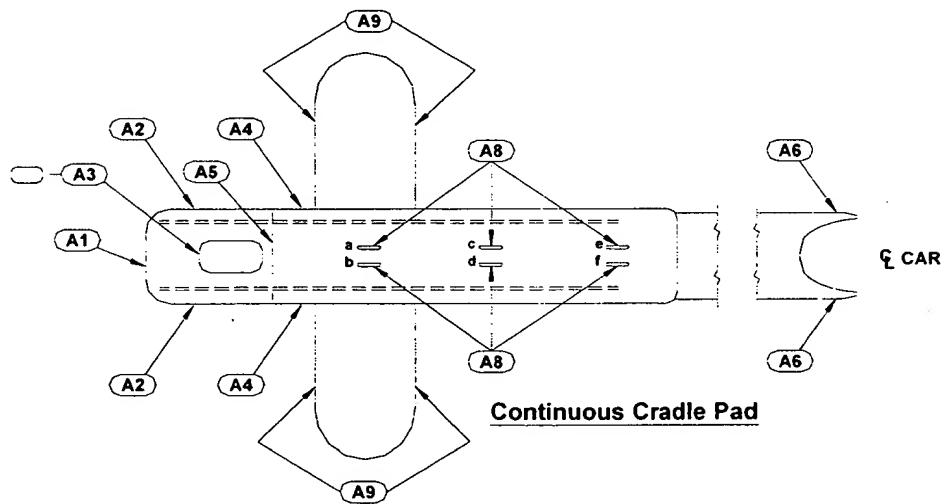
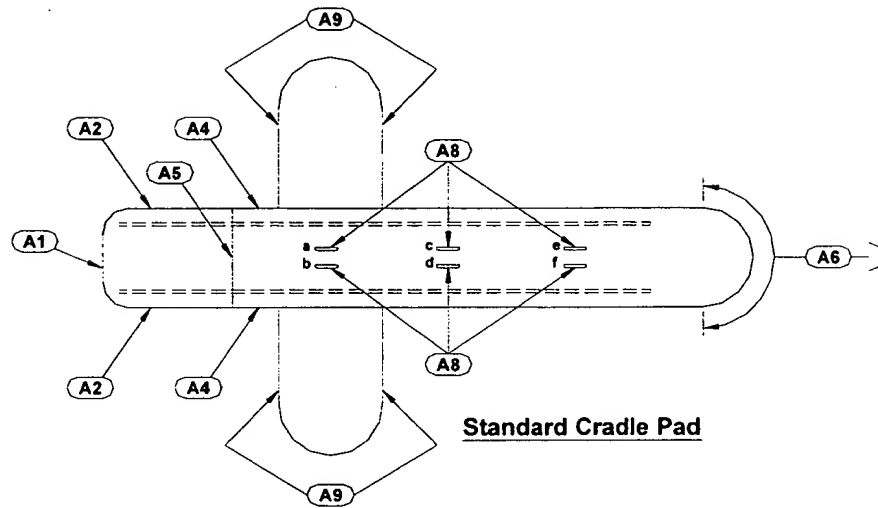
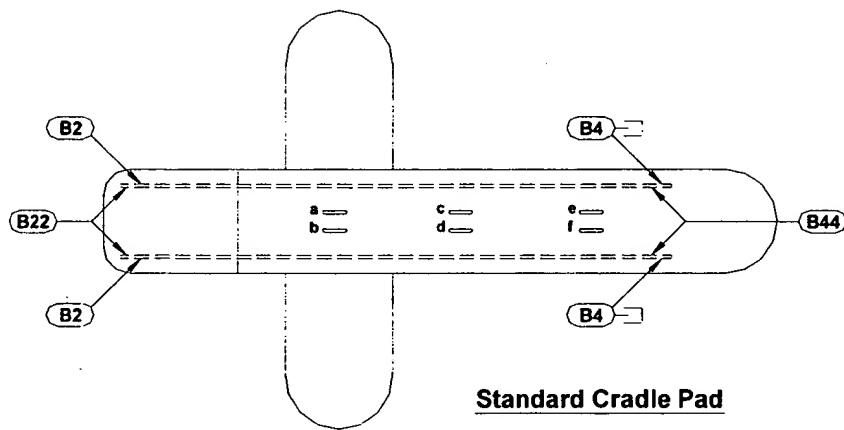
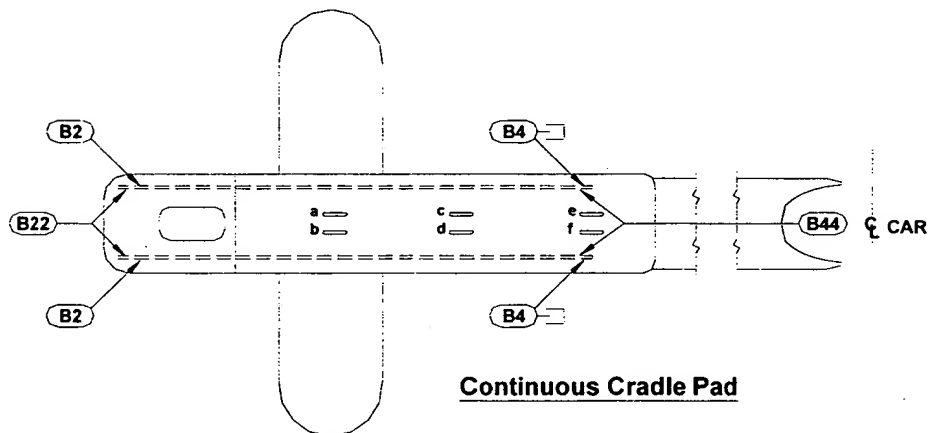


FIGURE 12B



Standard Cradle Pad



Continuous Cradle Pad

FIGURE 12C

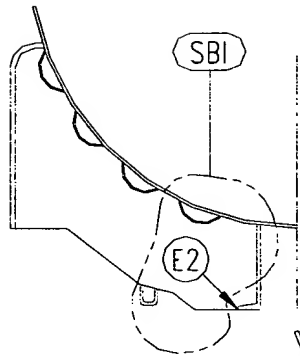


Fig. 1

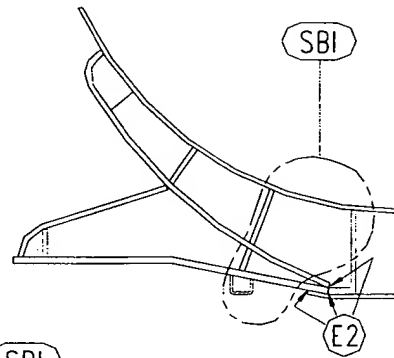


Fig. 2

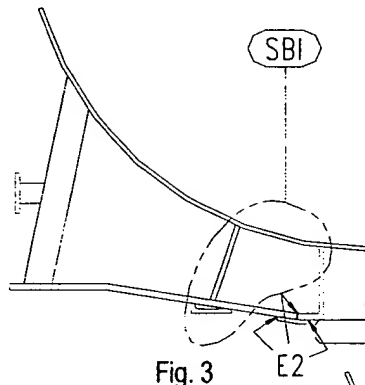


Fig. 3

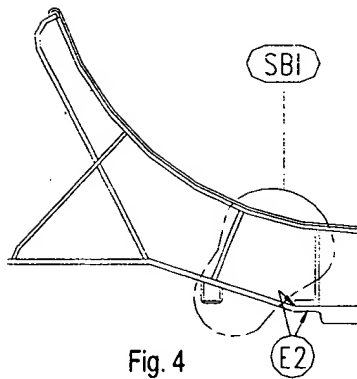


Fig. 4

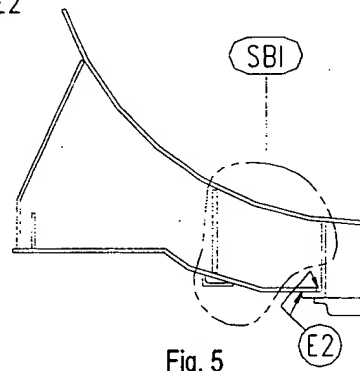


Fig. 5

FIGURE 12D

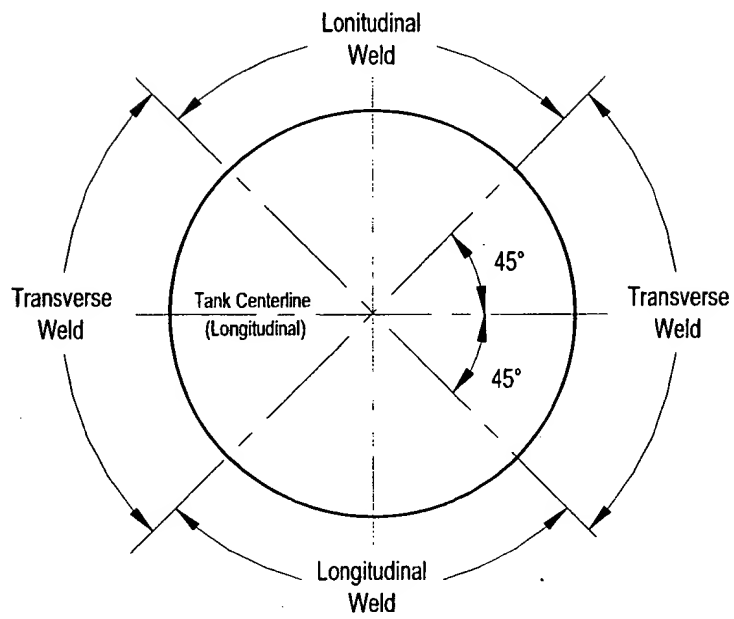


FIGURE 12E

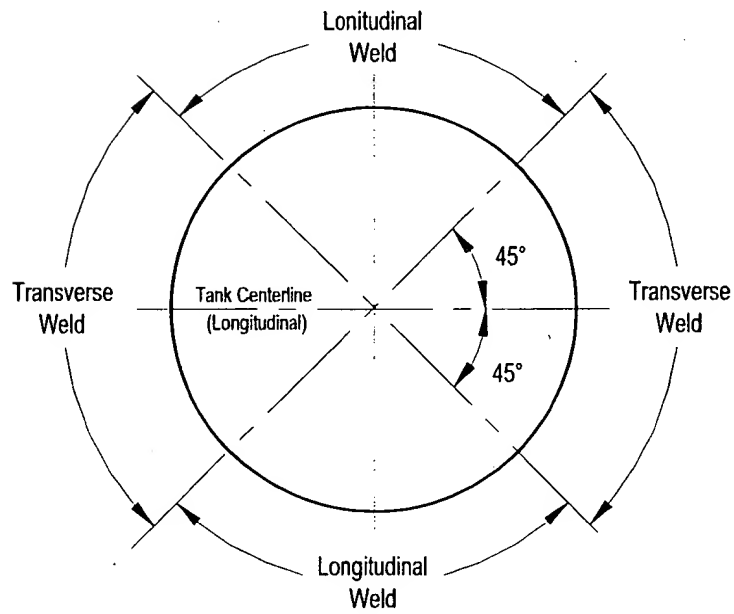


FIGURE 12F

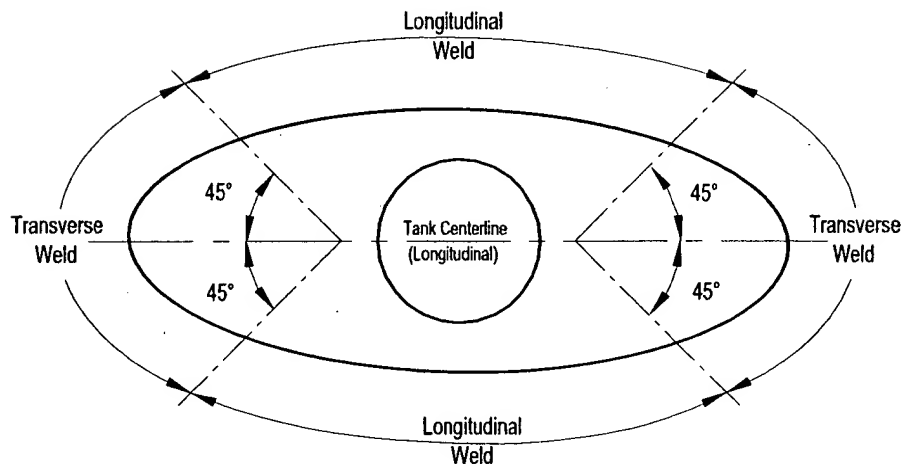


FIGURE 12G

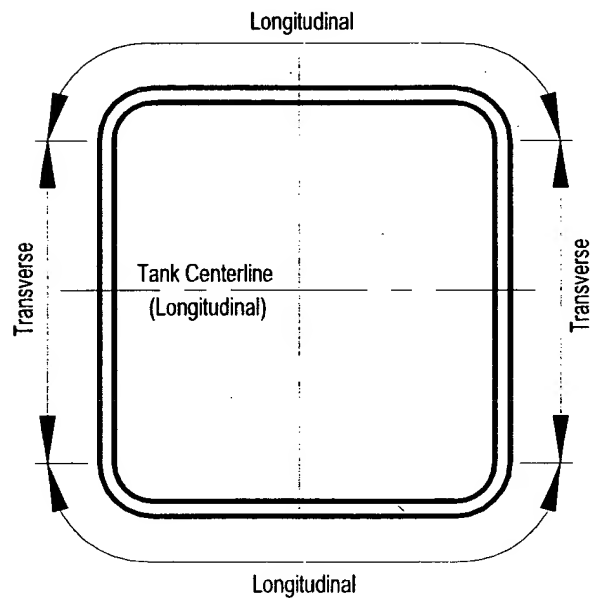


FIGURE 12H

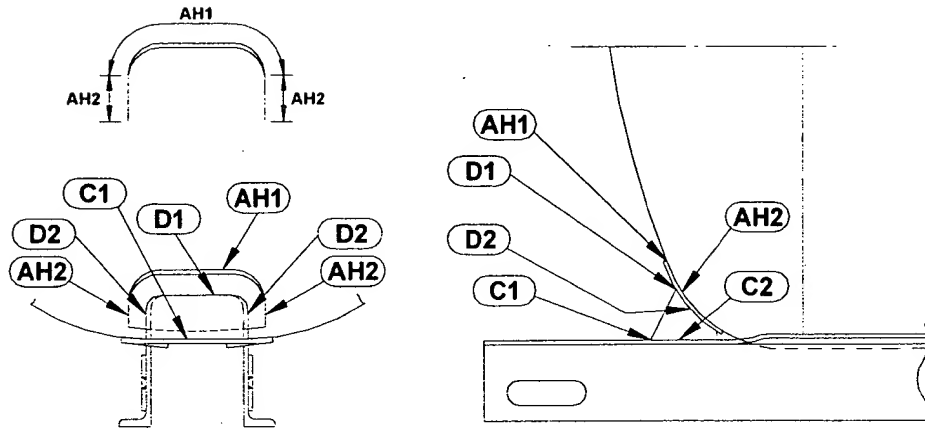


FIGURE 13A

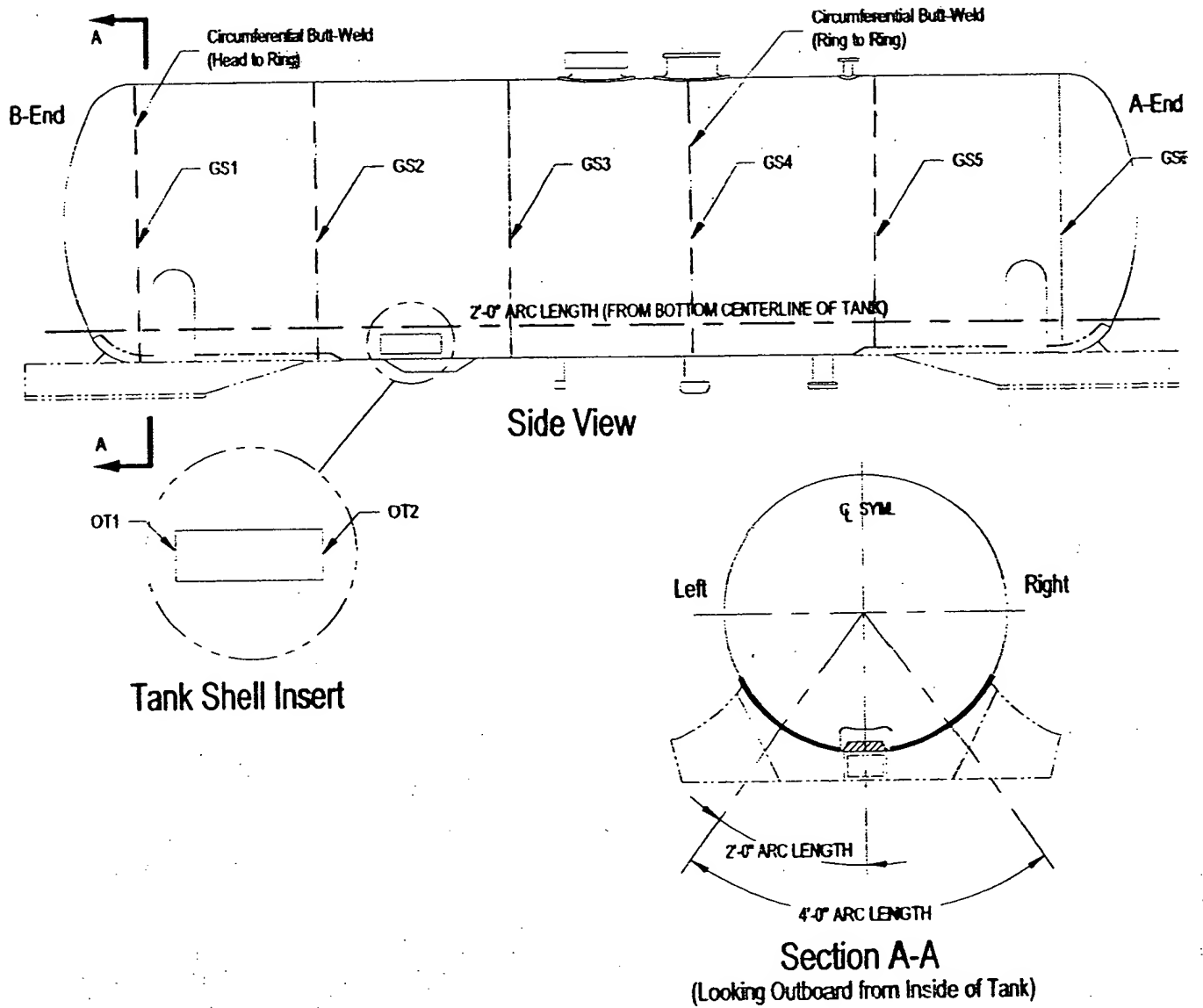


FIGURE 13B

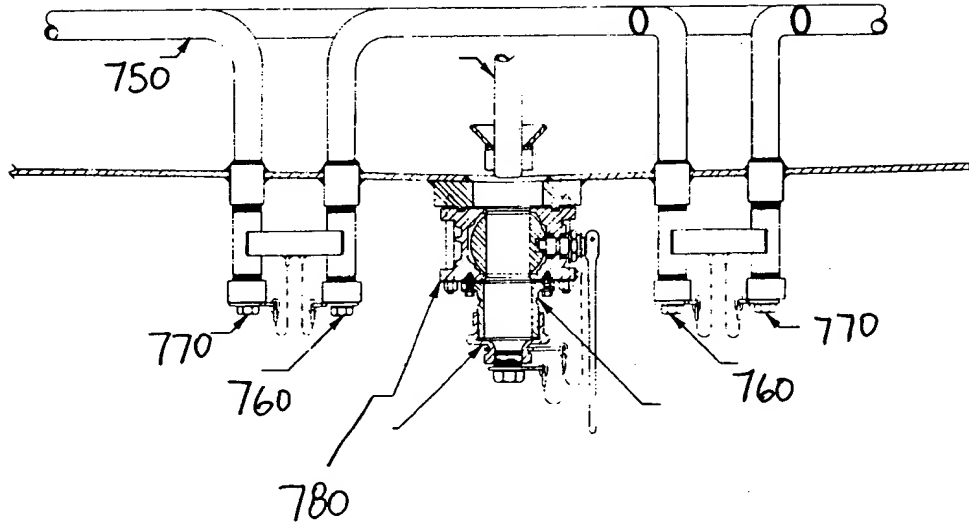


FIGURE 14A

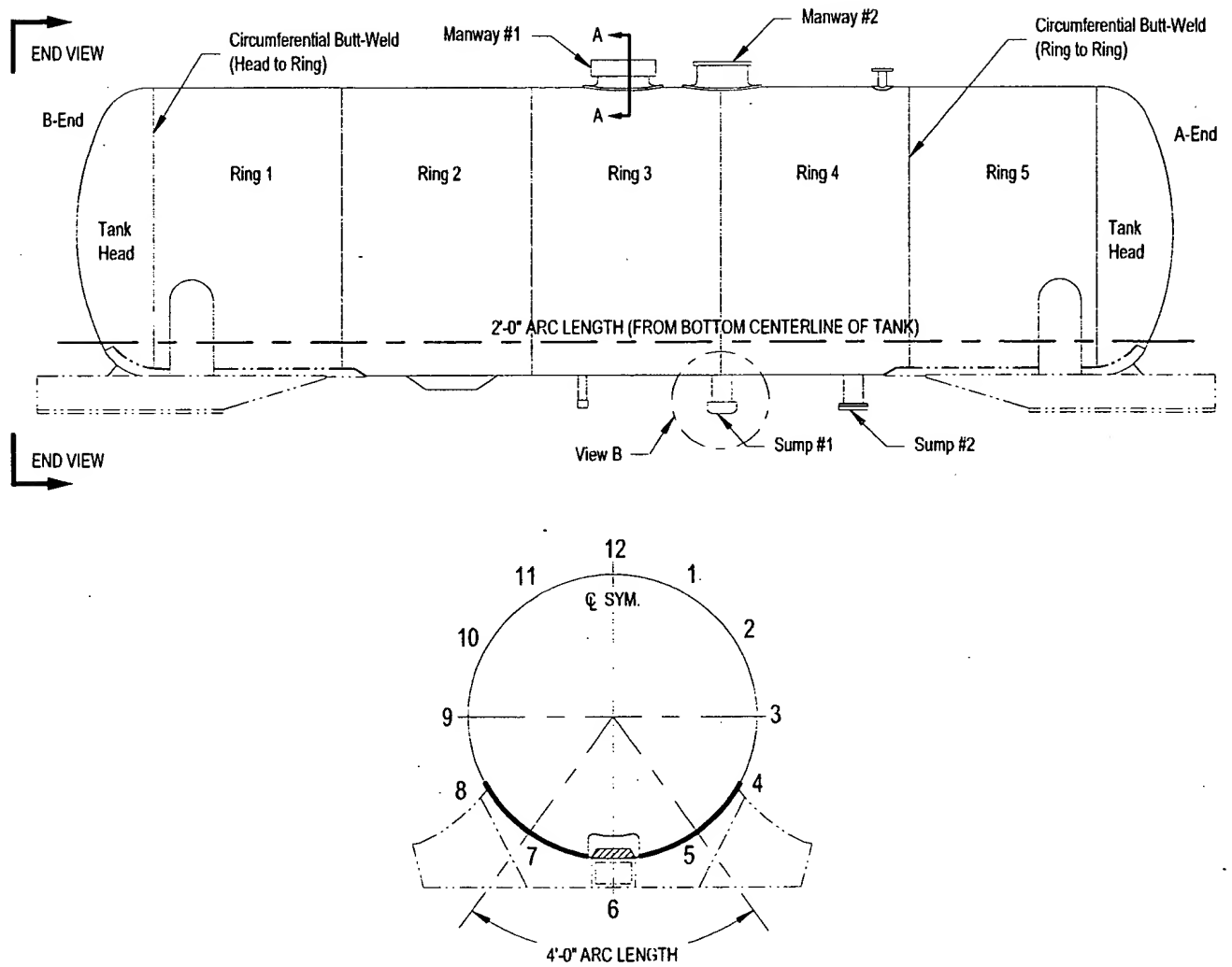


FIGURE 14B

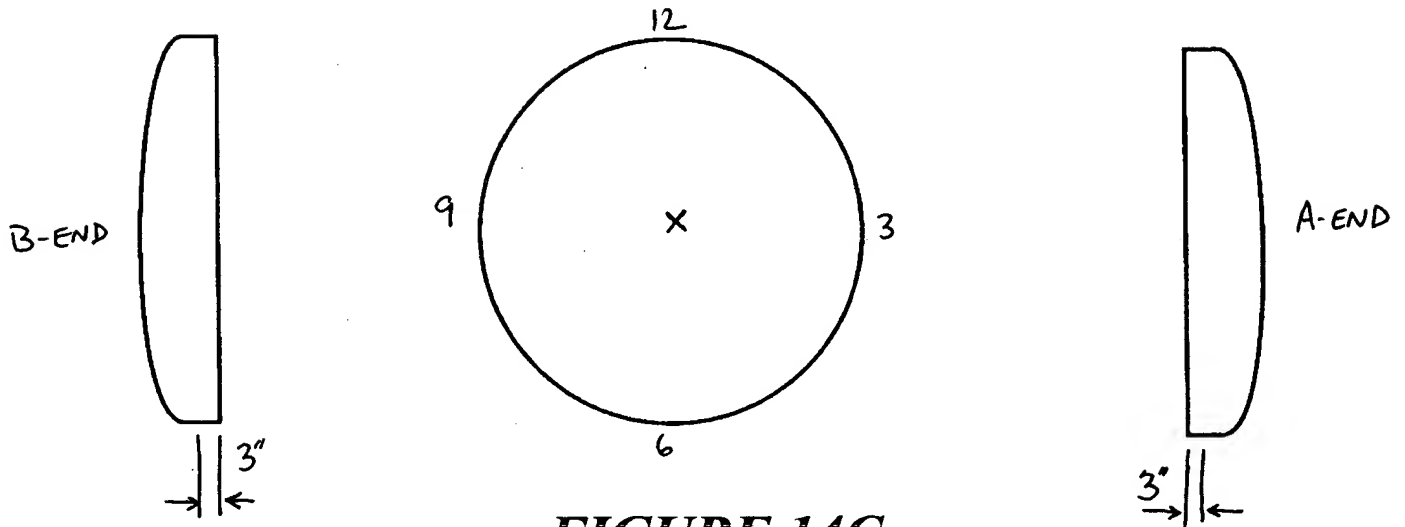


FIGURE 14C

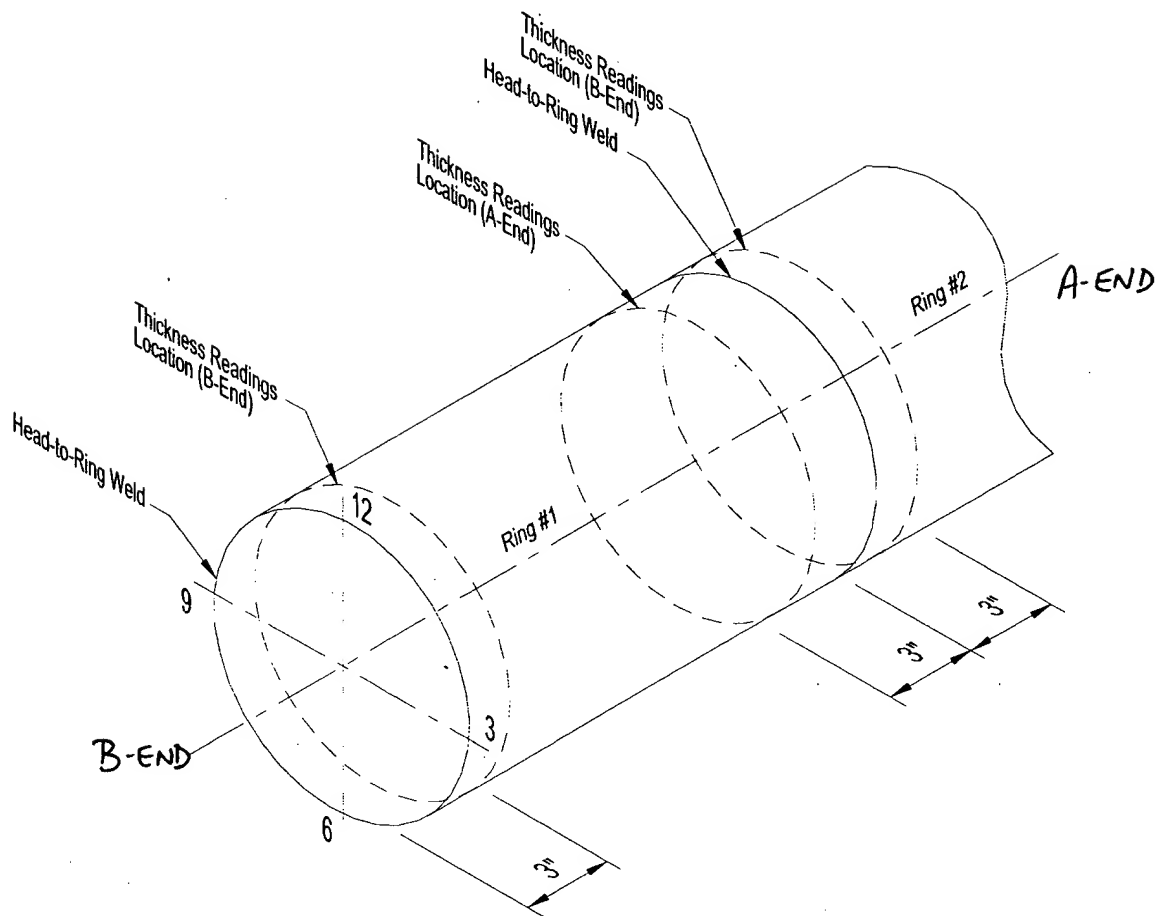


FIGURE 15A

ALLOWABLE SAFETY RELIEF VALVE PRESSURE TOLERANCES

Nominal STD ¹ (psig)	Tolerance (+/-) ⁴ (psig)	Minimum STD ¹ (psig)	Maximum STD ¹ (psig)	Minimum VTP ² (psig)	Gauge Range ⁵ (psig)	Maximum Gauge Increment ⁵ (psig)
35	3	32	38	28	0-100	1
75	3	72	78	60	0-150/160	1
150	4.5	145.5	154.5	120	0-300	2
225	6.75	218.25	231.75	180	0-400	5
247.5	7.4	240.1	254.9	196	0-400	5
255	7.7	247.3	262.7	204	0-400	5
280.5	8.4	272.1	288.9	224	0-500	5
300	9	291	309	240	0-500	5
330	10	320	340	264	0-500	5
375	11.25	363.75	386.25	300	0-600	10
450	13.5	436.5	463.5	360	0-750	10

NOTES:

1. STD indicates start-to-discharge.
2. VTP indicates vapor-tight pressure.
3. Valves should be set or reset to NOMINAL STD pressure.
4. DOT requirements for tolerances are given in 49CFR173.31(c)(6). Pressure tolerances listed above have been shown here to assist testing personnel and are not intended to alter any DOT requirements.
5. Digital or dial gauges of greater range may be used if accuracy and sensitivity levels are equal to or better than required above.

FIGURE 15B

TYPICAL INTERNAL STYLE SAFETY RELIEF VALVE

Midland A-1075-JVP Design

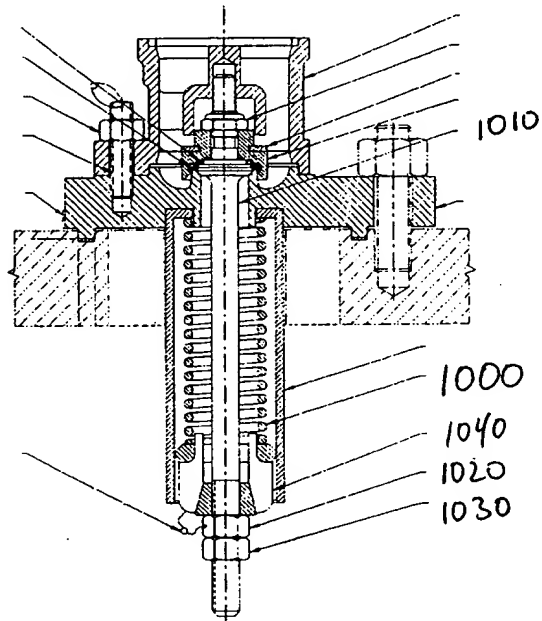


FIGURE 15C

TYPICAL TOP MOUNTED SAFETY RELIEF VALVE

Midland A-1435 Design

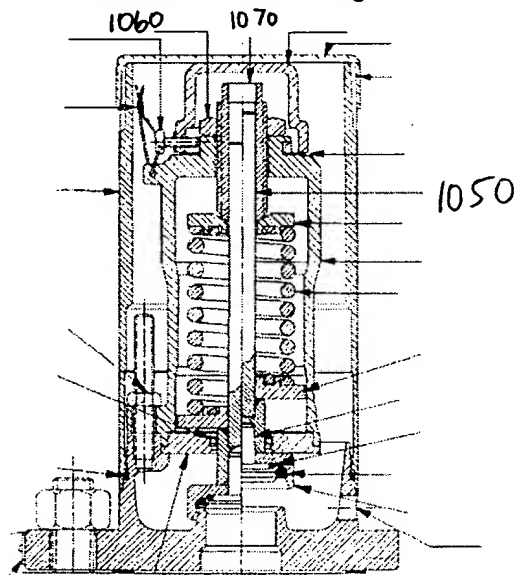


FIGURE 15D

TYPICAL SAFETY VENT

Midland A-424 Design

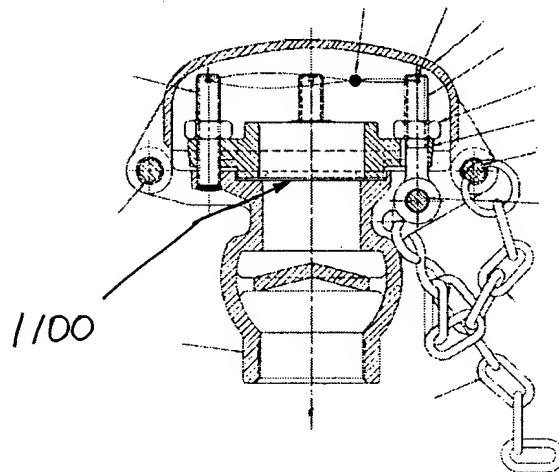
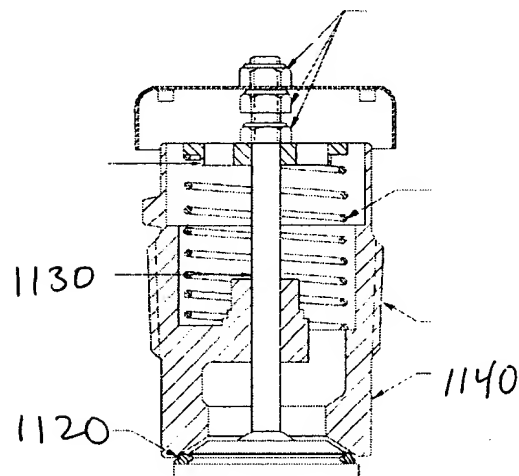


FIGURE 15E

VACUUM RELIEF VALVE

Midland A-208-W-10 Design



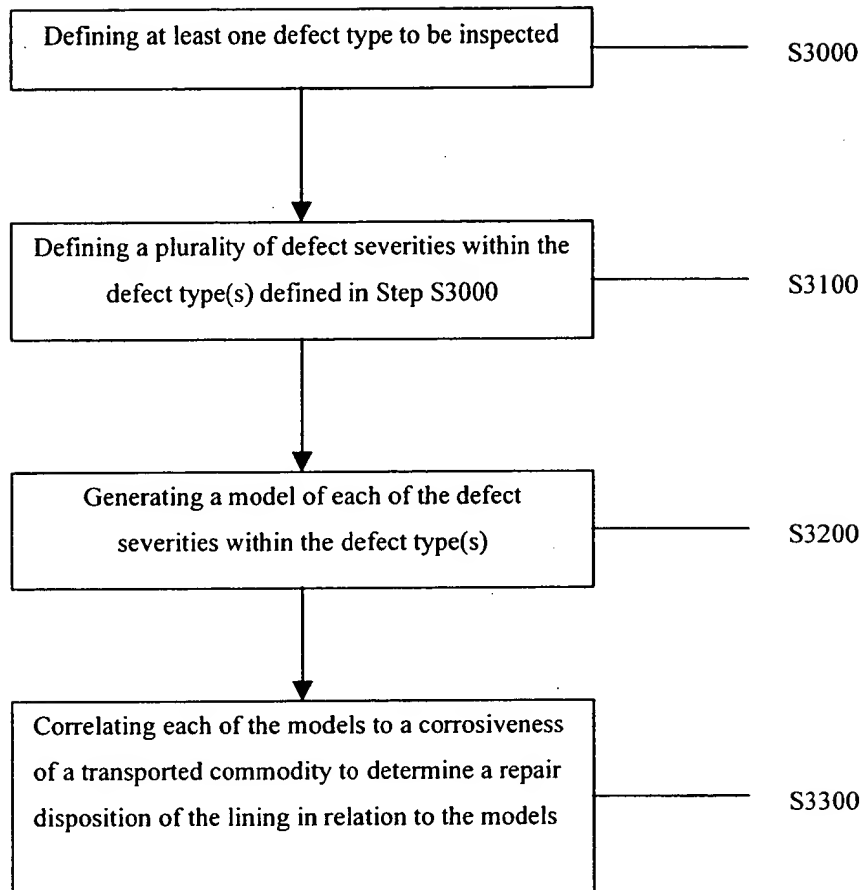


Figure 16

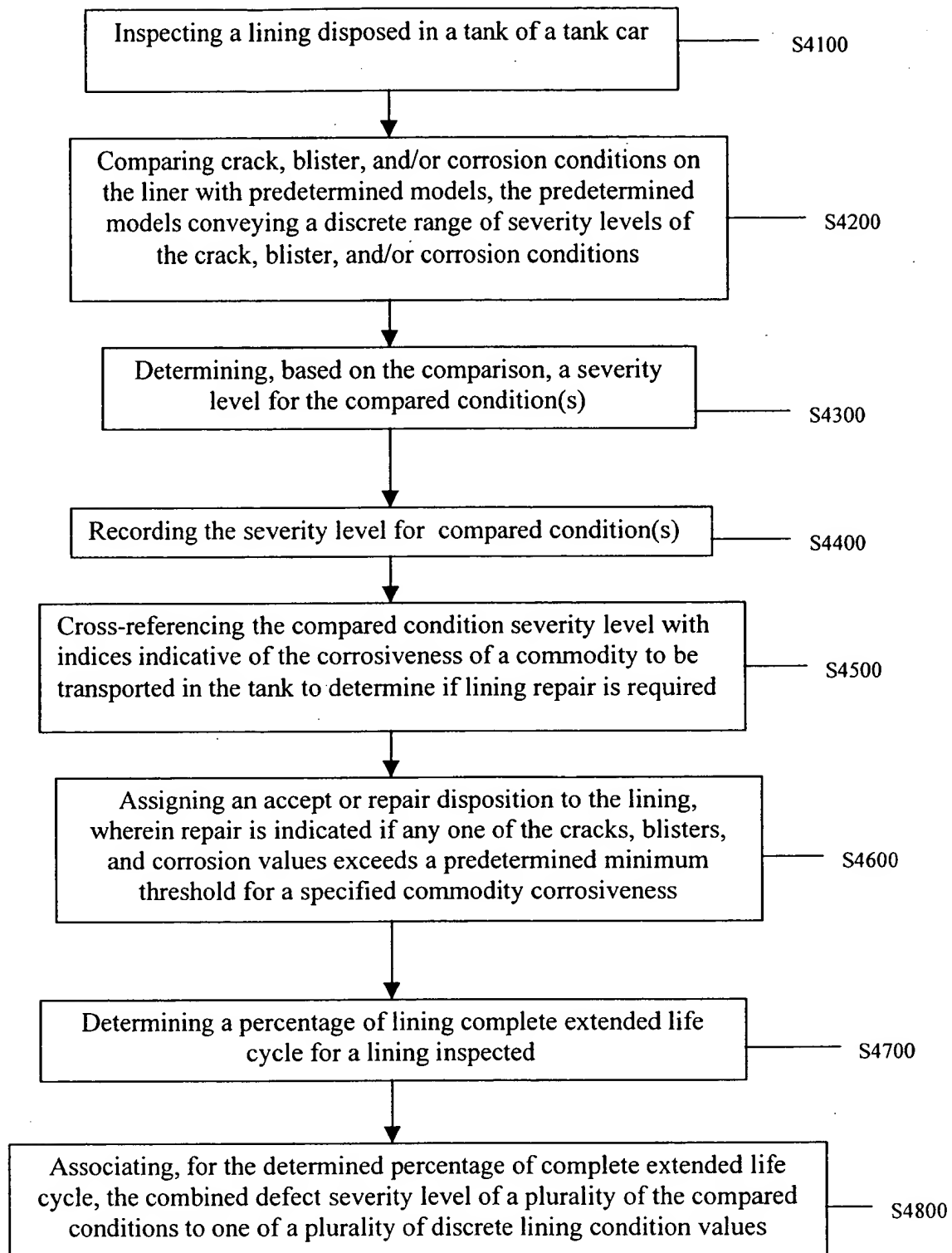


Figure 17

3600

3620

3630

TABLE 1: Accept/Repair Disposition

Defect	Condition	P.P.	Commodity Corrosiveness			
			6	4	3	2
Cracks	8	R	R	A	A	A
	6	R	R	R	A	A
	4	R	R	R	R	R
Blisters	8	R	A	A	A	A
	6	R	A	A	A	A
	4	R	R	A	A	A
	2	R	R	R	R	A
Corrosion	RE1	R	R	R	A	A
	RE2	R	R	R	A	A
	RE3	R	R	R	A	A

3610

R = Repair disposition
A = Accept as is disposition

Figure 18b

Lining System Operating Characteristics

Lining System	approx. dft	Properties	Recommended Service	Failure Criteria	Estimated Life
(Unmodified) High Bake Phenolic (400°F)	8 to 10 mils in multiple coats	Very good Water Resistance Good Corrosion Resistance High Temperature Resistant Difficult to repair or to touch-up	Organic and Inorganic Acids (concentrated and diluted) Less suitable for strong Alkalis Resistant against most Solvents Can be used for Food Grade Chemicals	Cracking due to mechanical impact (direct or reverse), temperature cycling or vibration. Hydrogen grooving of steel under coating in highly concentrated sulfuric acid.	8 years
(Modified) High Bake Phenolic (400°F)	8 to 10 mils in multiple coats	Very good Water Resistance Good Corrosion Resistance Less brittle than unmodified phenolics	Diluted Organic and Inorganic Acids Good resistance against strong Alkalis Can be used for Food Grade Chemicals Resistant to most Solvents	Cracking due to mechanical impact (direct or reverse), temperature cycling or vibration.	8 years
(Modified) High Bake Epoxy/Amine (400°F)	12 to 15 mils in 2 coats	Very good Water Resistance Good Corrosion Resistance Two-pack materials	Diluted Organic and Inorganic Acids Very good resistance against hot alkalis Good Solvent Resistance	Becomes brittle on aging. May blister in unsuitable chemicals. May crack under impact and bending.	7 years
(Modified) Low Bake Epoxy/Amine (250°F)	12 to 15 mils in 2 coats	Good Water Resistance Good Corrosion Resistance Two-pack materials	Diluted, non oxidizing Inorganic Acids Very good resistance against hot alkalis Good Solvent Resistance	Becomes brittle on aging. May blister and/or soften in certain chemicals. May crack under impact and bending.	7 years
Epoxy/Phenolic/Amine air-dry or force curing	12 to 15 mils	Good Water Resistance Good Corrosion Resistance Two-pack materials	Acidity not lower than pH 2 Very good Alkali Resistance Good Solvent Resistance	Becomes brittle on aging. May blister and/or soften in certain chemicals. May crack under impact and bending.	7 years
Epoxy/Amine Solvent Free. Air dry or Force Curing (*)	12 to 15 mils in 1 coat	Good Water Resistance Good Corrosion Resistance Plural Component Appl.	Diluted, non oxidizing Inorganic Acids Very good resistance against Alkalis Good Solvent Resistance	Becomes slightly brittle with aging. May slightly soften in certain solvents. Better Crack and Impact Resistant	8 years
Epoxy/Polyamidoamine Force curing	10 - 14 mils 2 coats	Good Water Resistance Good Corrosion Resistance Two-pack materials	Good resistance against diluted alkalis Resistant against some solvents Can be Food Grade Compliant	Becomes slightly brittle with aging. May blister or soften in certain solvents Fair Crack and Impact Resistant.	6 years
Rubber Sheet Lining	N/A	Application using in-situ vulcanizing and adhesives.	Good Acid and Alkali Resistance Not suitable for most Solvents Maximum Temperature 150°F Hard rubber better resistant than soft rubber	Oxidizing chemicals may attack the sheet lining and embrittle. Sheets may loose adhesion. Welds may deteriorate (corrosion)	12 years

Figure 19

TABLE 2: Lining Condition Matrix

Complete Extended Life Cycle	Defect Type	Lining Condition			
		Excellent A	Good B	Fair C	Poor D
0 - 25 %	Crack	No Defects	No Defects	> No. 8	> No. 6
	Blister	No Defects	> No. 8 (2.5%)	> No. 6 (15%)	> No. 6 (45%)
	Corrosion	No Defects	No Defects	> Re 1	> Re 2
	DFT	> 8 mils	> 7 mils	> 6 mils	< 6 mils
	Stains	No Spots	No Spots	< 10 Sq. Ft	> 10 Sq. Ft
26 - 42 %	Crack	No Defects	No Defects	> No. 8	> No. 6
	Blister	No. 6 (2.5%)	> No. 6 (15%)	> No. 4 (45%)	> No. 2 (15%)
	Corrosion	No Defects	No Defects	< Re 2	< Re 2
	DFT	> 7 mils	> 7 mils	> 6 mils	< 6 mils
	Stains	No Spots	No Spots	< 20 Sq. Ft	> 20 Sq. Ft
43 - 58 %	Crack	No Defects	No Defects	> No. 8	> No. 4
	Blister	> No. 6 (2.5%)	> No. 6 (15%)	> No. 4 (15%)	> No. 4 (15%)
	Corrosion	No Defects	No Defects	< Re 2	< Re 2
	DFT	> 6 mils	> 5 mils	< 5 mils	< 5 mils
	Stains	No Spots	< 10 Sq. Ft	< 20 Sq. Ft	> 20 Sq. Ft
59 - 83 %	Crack	No Defects	No Defects	> No. 6	> No. 4
	Blister	No. 6 (15%)	> No. 4 (15%)	> No. 2 (15%)	> No. 2 (45%)
	Corrosion	No Defects	No Defects	< Re 2	< Re 2
	DFT	> 5 mils	> 5 mils	> 5 mils	< 5 mils
	Stains	< 10 Sq. Ft	< 10 Sq. Ft	< 20 Sq. Ft	> 20 Sq. Ft
> 83 %	Crack	No Defects	No Defects	> No. 4	> No. 4
	Blister	> No. 4 (15%)	> No. 4 (15%)	> No. 4 (15%)	> No. 4 (15%)
	Corrosion	No Defects	No Defects	< Re 2	< Re 3
	DFT	> 5 mils	> 5 mils	> 5 mils	< 5 mils
	Stains	< 10 Sq. Ft	< 10 Sq. Ft	< 20 Sq. Ft	> 20 Sq. Ft

Figure 20

3870

Work Instruction:

1. Blistering

A phenomenon peculiar to painted surfaces is the formation of blisters relative to some system weakness. This procedure describes the procedure for determining the size and density of the blisters so that comparisons can be made.

Procedure

Inspect the lining surface for evidence of blistering. Match the visual standards with the actual condition of the lining to determine the size and frequency of the blistering.

Size - There are 5 degrees of size on a numerical scale.

Number 10 - no blistering

Number 8 - smallest blister easily seen by eye

Number 6 - Small blistering

Number 4 - Medium blistering

Number 2 - Large blistering

Frequency - There are 3 degrees of frequency for each category of size which describe the density of the number of blisters formed in a local area

Code MD - Medium Dense

Code M - Medium

Code F - Few

Reporting:

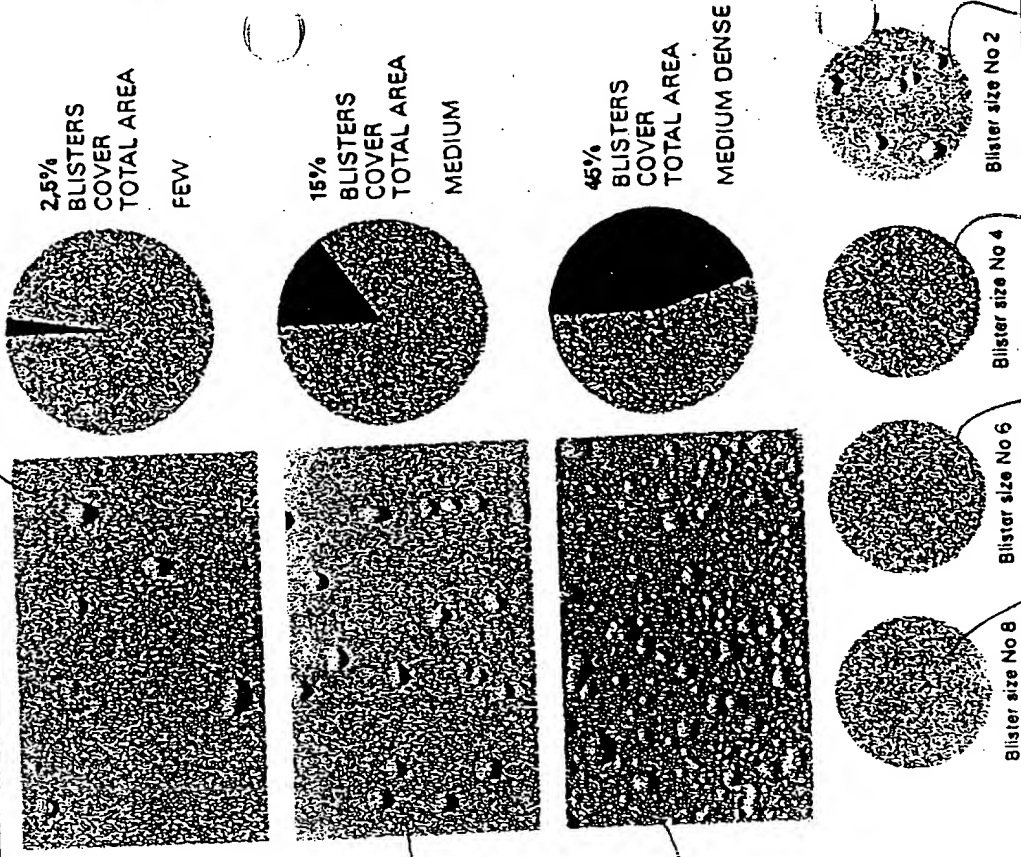
Record the size of the largest area of damage. This will be a No. code.

Record the density of the largest area of damage. This will be a letter code.

Indicate whether the Blistering is scattered or localized

If it is localized indicate the number of areas

Sketch/Description:



3840

3830

3820

3810

3800

Figure 21

3910 3900 3920

Work Instruction:

2. Cracking

Cracking is a condition that occurs when there is a break in the film surface that extends to the substrate. Where this is difficult to determine the break should be evaluated with a minimum of 10X magnification and only be called a crack if the underlying surface is visible.

Procedure

Visually compare the surface with the photographic reference standards to determine the size and density of the cracking.

Three categories of cracking:

Code I- Irregular Pattern Type - Cracking, in which the breaks in the film are in no definite pattern.

Code L- Line Type - Cracking in which the breaks in the film are generally arranged in parallel lines, usually horizontally or vertically over the surface.

Code S- Sigmoid Type - Cracking in which the breaks in the film form a pattern consisting of curves meeting and intersecting usually on a large scale. See adjacent Visual Standards

Since the type and degree of failure may vary over any given area, a representative portion should be rated.

Reporting:

Record the combination size and density of the largest area of damage. This will be a No.

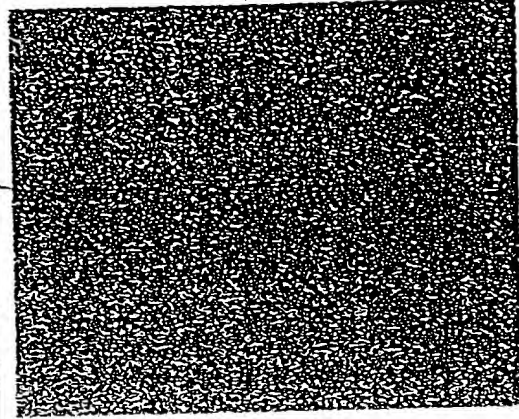
Code.

Record the type of cracking. This will be a letter code.

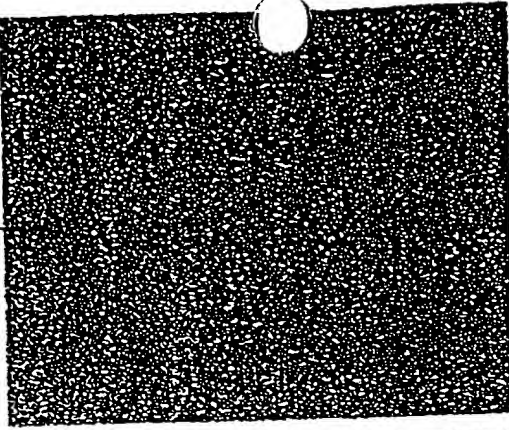
Indicate whether the cracking is scattered or localized

If it is localized indicate the number of areas

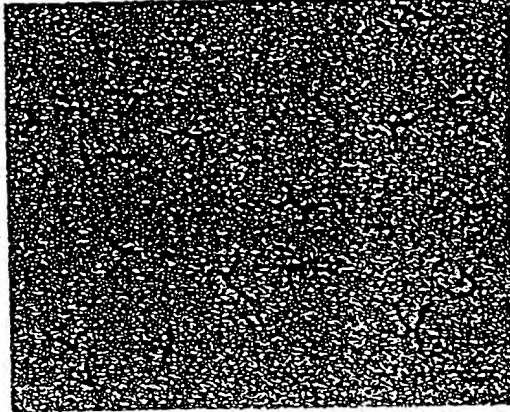
Sketch/Description:



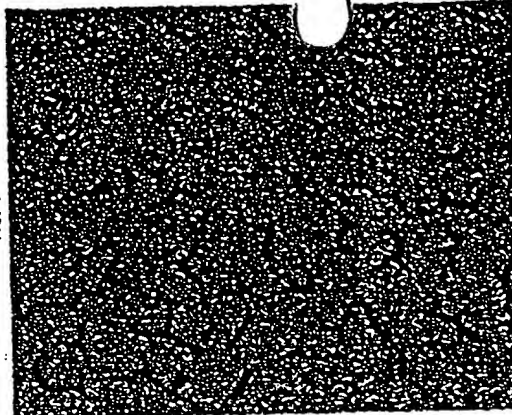
No. 8



No. 6



No. 4



No. 2

3930

3940

700 4010

4020

Work Instruction:

3. Corrosion

This test method covers the evaluation of the degree of rusting on painted steel surfaces using visual standards. The amount of rusting beneath or through a paint film is a significant factor in determining whether a coating system should be repaired or replaced.

Procedure

Visually compare the surface with the photographic reference standards to determine the scale of degree of rusting.

Corrosion may be scattered or localized

Be careful not confuse dirt or staining from rust with actual rusting.

Re 1 - smallest corrosion easily seen by eye

Re 2 - small amounts of corrosion

Re 3 - Medium amounts of corrosion

Re 4 - large amounts of corrosion

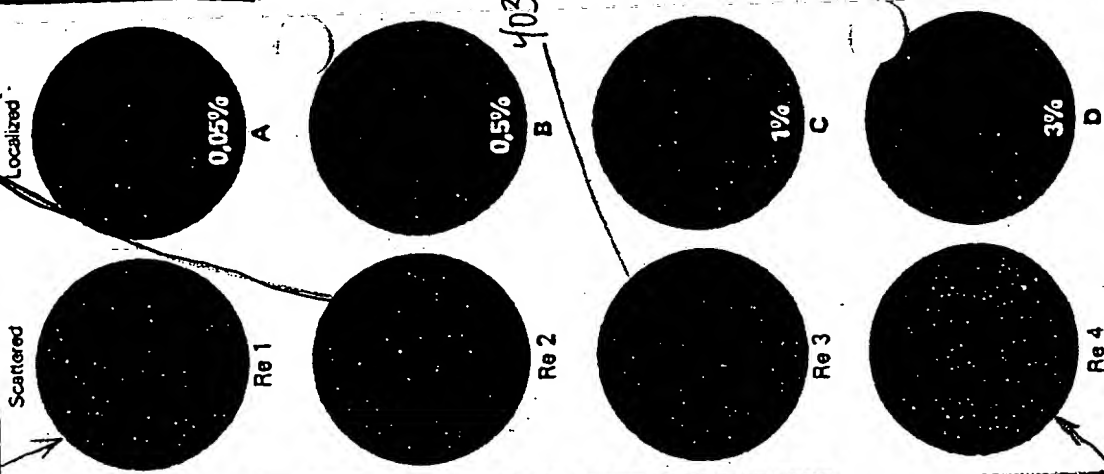
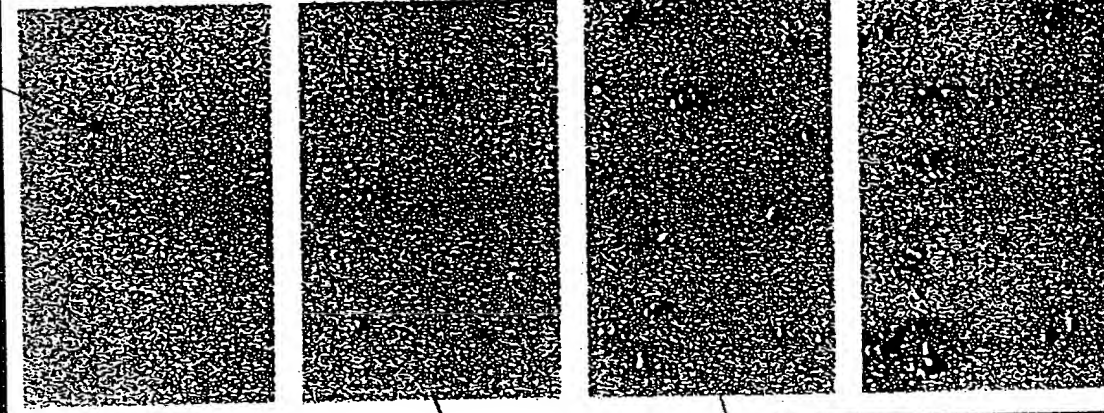
Reporting:

Record the combination scale of degree of rusting and the density of the largest area of damage. This will be a Re code.

Indicate whether the rusting is scattered or localized

If it is localized indicate the number of areas

Sketch/Description:



4040

Figure 23

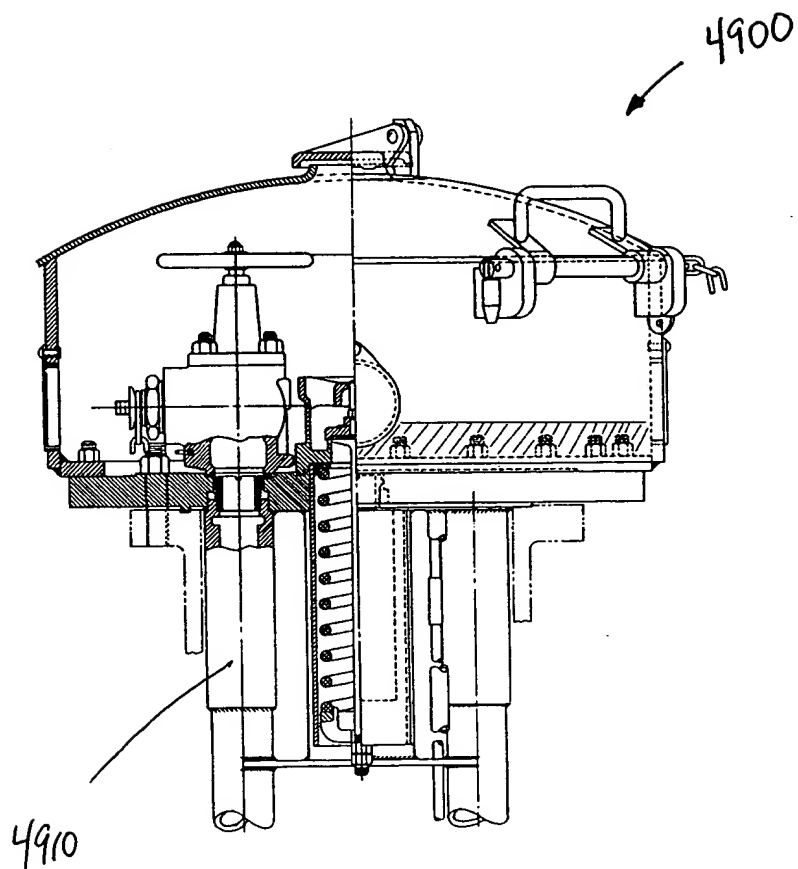


Figure 24a

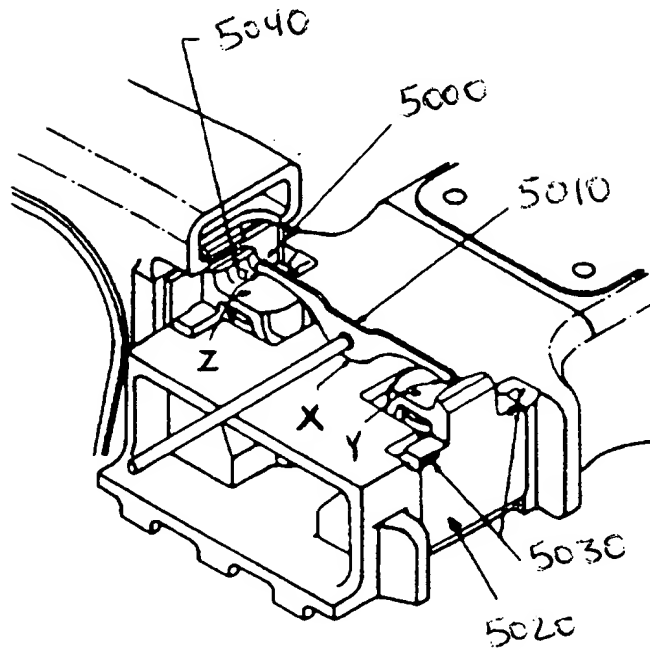


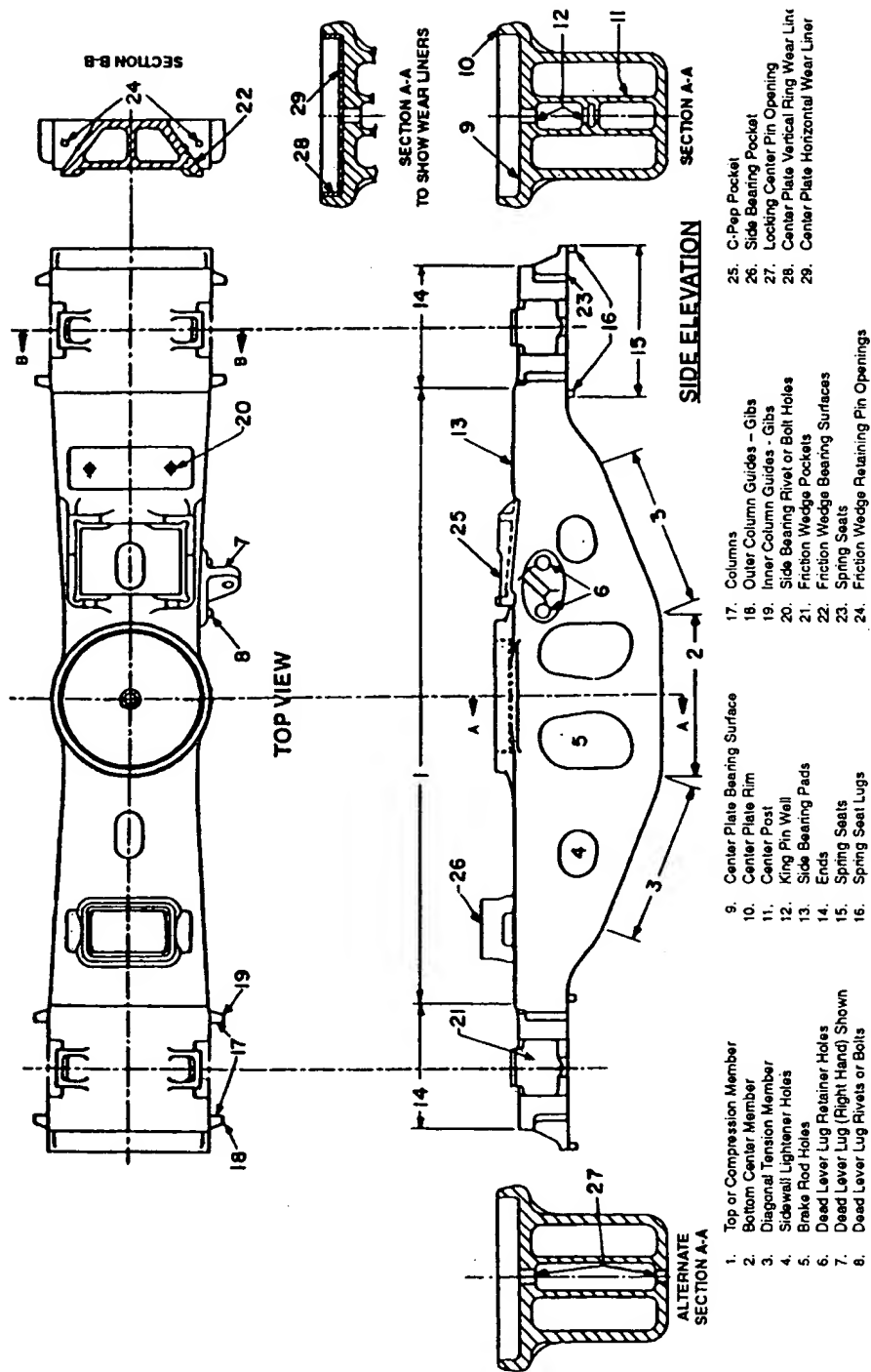
Figure 24b

Type of Truck	Repair When Total Clearance Between Bolster and Truck Side Frame Columns Reaches:		Repair to These Nominal Clearance Dimensions Between Bolster and Truck Side Frame:		
	Lateral (inches)	Longitudinal (inches)	Lateral		Total Longitudinal (inches)
			Inside (inches)	Outside (inches)	
Trucks WITH built-in snubbing features having roller bearings which provide lateral (all bearing sizes): or having 5" x 9" or 5 1/2" x 10" roller bearings which provide no bearing lateral.	1 1/8"	*	1/4"	1/4"	*
Trucks with built-in snubbing features having 6" x 11", 6 1/2" x 12" or 7" x 12" roller bearings which provide no bearing lateral.	1 1/2"	*	1/2" **	1/2" **	*

* Longitudinal clearances are primarily a matter of wear of frame or bolster column wear plates, friction shoes and bolster or frame column surfaces. See maintenance instructions from truck designer or manufacturer.

** 1/4" and 5/8" clearances are acceptable on bolsters manufactured prior to 1987.

Figure 24c



- | | | | |
|--------------------------------------|---------------------------------|---|---|
| 1. Top or Compression Member | 9. Center Plate Bearing Surface | 17. Columns | 25. C-Pep Pocket |
| 2. Bottom Center Member | 10. Center Plate Rim | 18. Outer Column Guides - Gibs | 26. Side Bearing Pocket |
| 3. Diagonal Tension Member | 11. Center Post | 19. Inner Column Guides - Gibs | 27. Locking Center Pin Opening |
| 4. Sideload Lightener Holes | 12. King Pin Well | 20. Side Bearing Rivet or Bolt Holes | 28. Center Plate Vertical Ring Wear Liner |
| 5. Brake Rod Holes | 13. Side Bearing Pads | 21. Friction Wedge Pockets | 29. Center Plate Horizontal Wear Liner |
| 6. Dead Lever Lug Retainer Holes | 14. Ends | 22. Friction Wedge Bearing Surfaces | |
| 7. Dead Lever Lug (Right Hand) Shown | 15. Spring Seats | 23. Spring Seats | |
| 8. Dead Lever Lug Rivets or Bolts | 16. Spring Seal Lugs | 24. Friction Wedge Retaining Pin Openings | |

Figure 24d

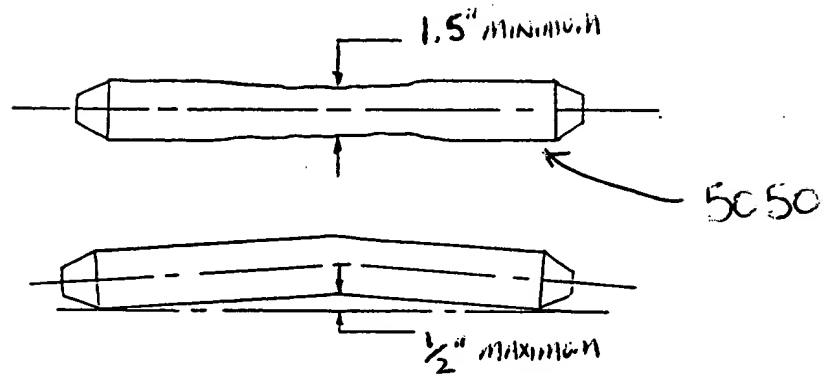


Figure 24e

<u>Bettendorf</u>	<u>Buckeye</u>	<u>ASF</u>	<u>Pittsburgh Steel</u> <u>Foundry</u>	<u>Scullin Steel</u>		
UT456	3-1776	7273	3-1673	4665	5364	5869-B
<u>Dresser</u>	F-420	7323	3-1674	4770	5364-C	5917-A
TF5105	F-535	21182	4-1862	4891	5364-E	6260-C
<u>Dominion</u>		21362	4-2045	4942	5413-B	6260-D
TF-5100			12897	5171	5483-A	6428-A
<u>Canadian Steel</u>			12921	5220	5483-B	6577-A
<u>Foundry</u>			21263	5321-A	5600-A	6656
26565				5321-B	5600-B	6673-A
				5321-C	5600-C	7207
				5321-F	5811-A	42-CS-180
				5321-H	5869-A	

Figure 24f

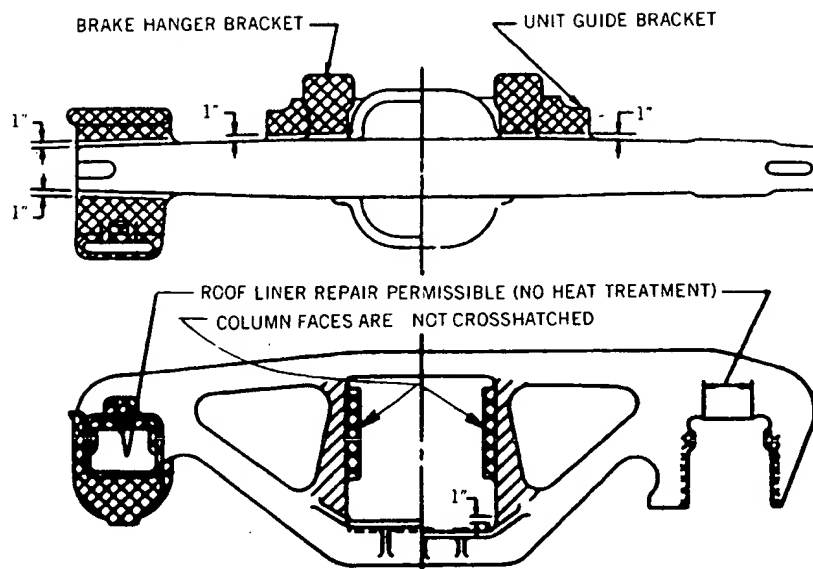
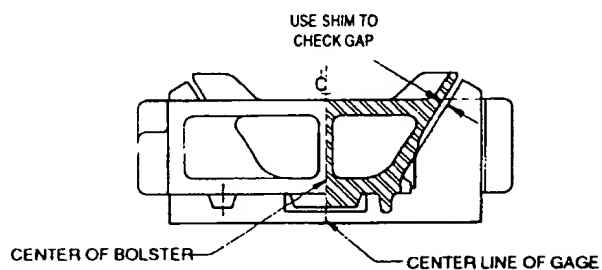
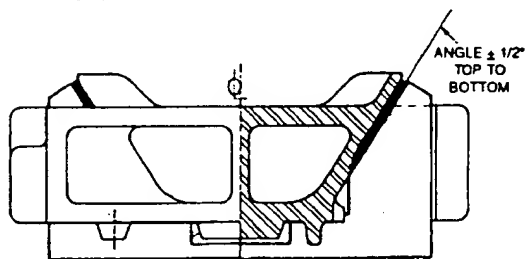


Figure 24g



GAGE IN WORN BOLSTER POCKET



GAGE IN REPAIRED BOLSTER POCKET

Figure 24h

AAR Designation	Load Carrying Spring Condemning Free Height
D3	8 5/8"
D4	9 1/16"
D5	9 5/8"
D6	9 5/16"
D6A	8 3/8"
D7	10"

Figure 25a

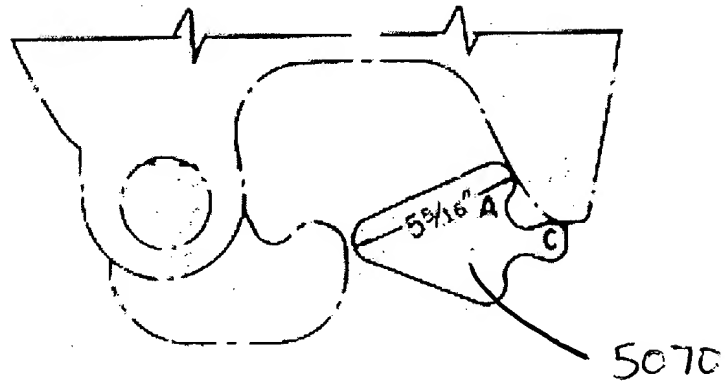


Figure 25b

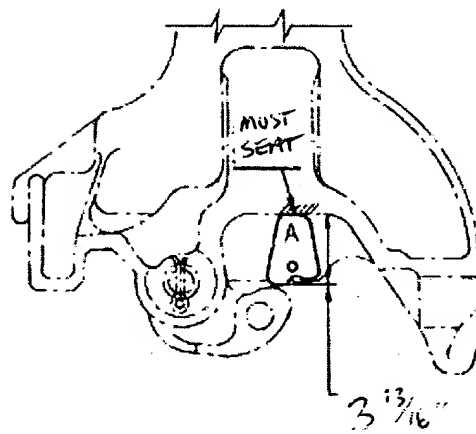


Figure 25c

FIGURE C-1

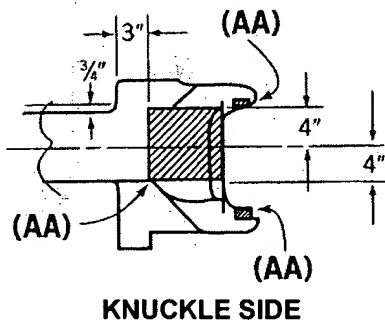


FIGURE C-2

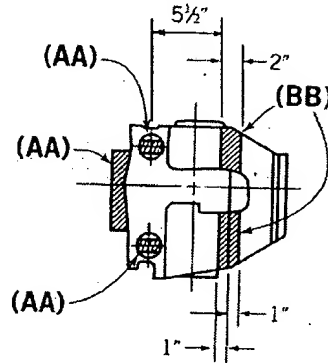
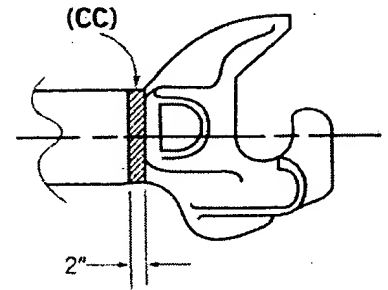


FIGURE C-3



F-TYPE COUPLERS

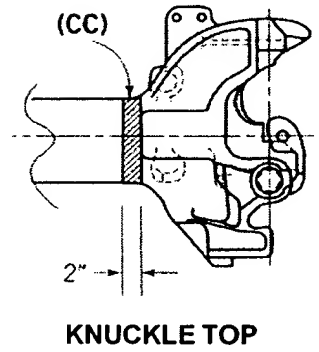
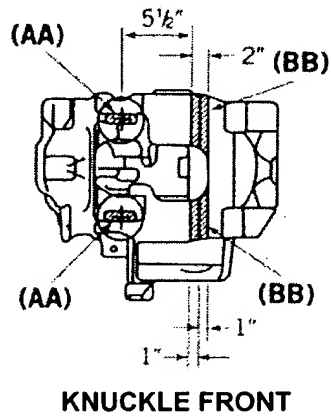


Figure 25d

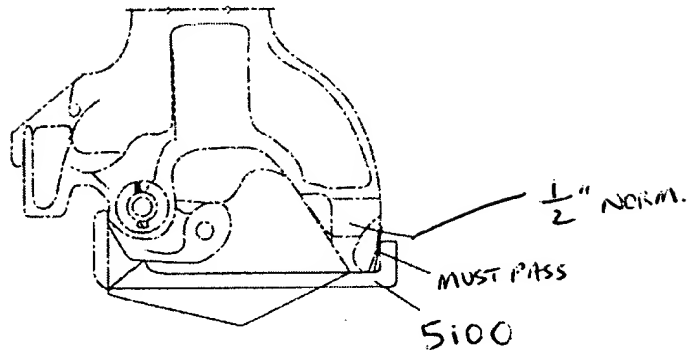


Figure 25e

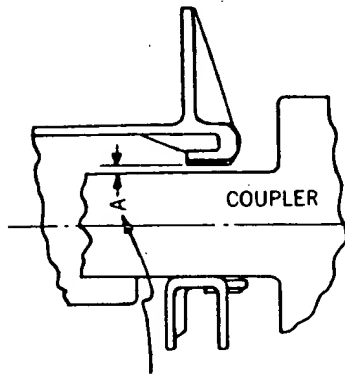


Figure 25f

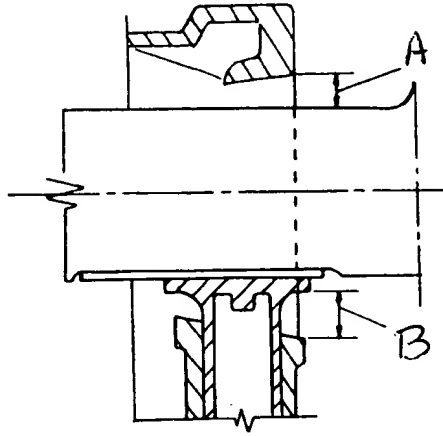


Figure 25g

Coupler Type	Min. Clearance Top of Shank to Striker Dimension "A" (inches)	Min. Clearance Spring Basket Top to Underside of Carrier Lip. Dimension "B" (inches)
F70, F71, F72, SF70 29 1/4" Length	1 1/8"	1 5/8"
F79, SF79 43" Length	2 3/8"	3 1/2"

Figure 25h

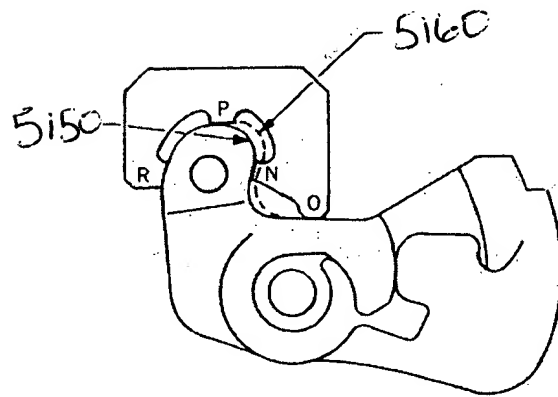


Figure 25i

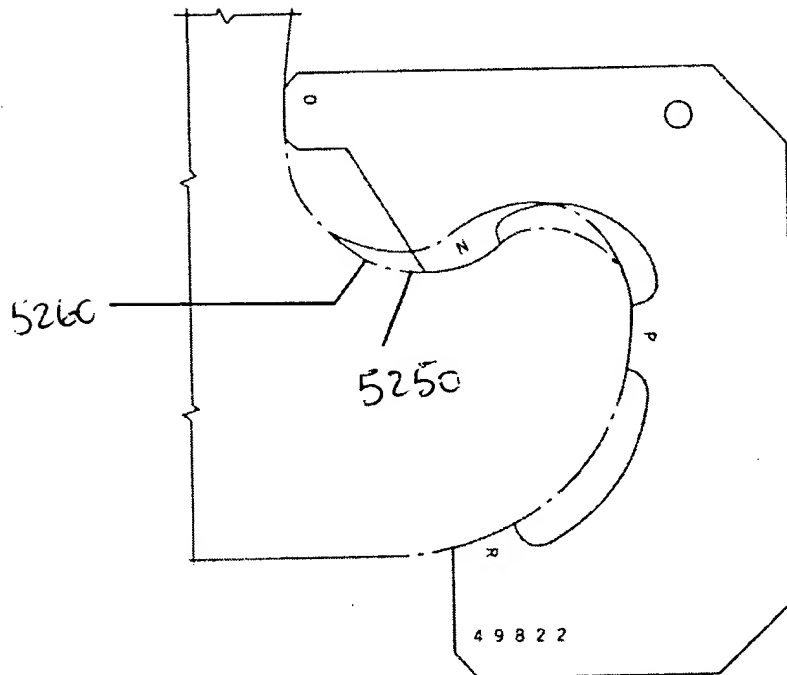


Figure 25j

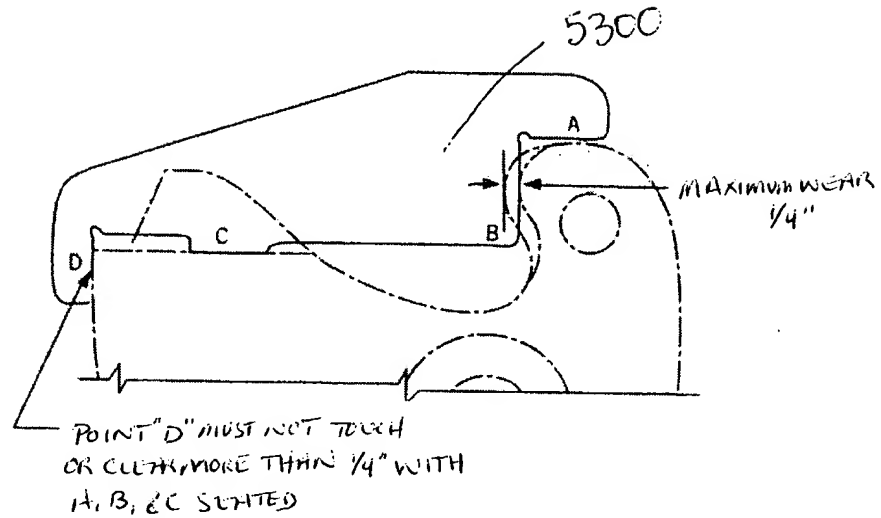
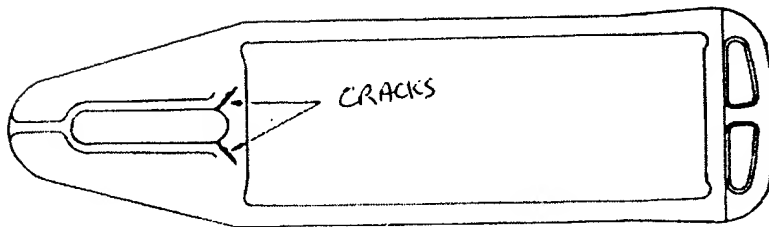


Figure 25k

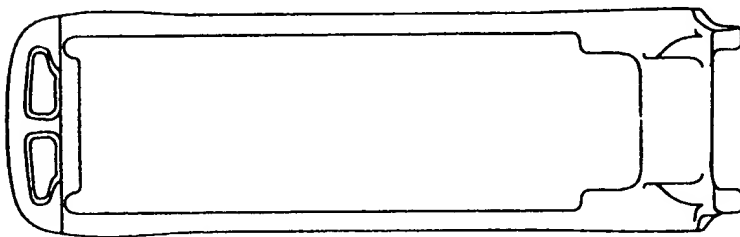


Y40, SY40, OR YS93 DESIGN YOKES

FOR USE WITH TYPE E COUPLER

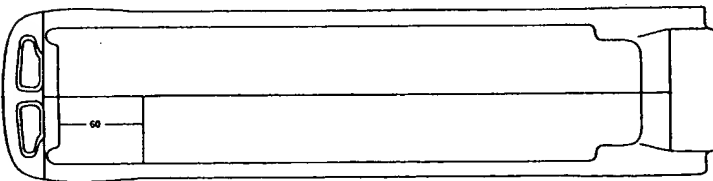
Y41 DESIGN YOKES

FOR USE WITH TYPE E COUPLER



Y45 DESIGN YOKES

FOR USE WITH TYPE E/F AND F COUPLERS



Y49 DESIGN YOKES

FOR USE WITH TYPE E/F AND F COUPLERS

Figure 26a

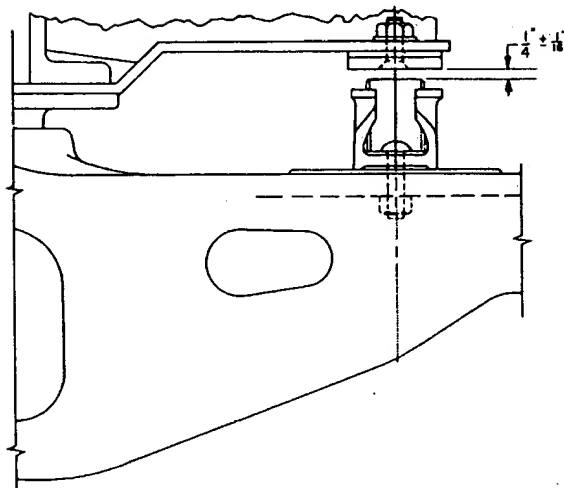


Figure 26b

